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Clippership Wharf

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Final Environmental Impact Report

EOEA # 5866

Project Proponent

Clippership Wharf Limited Partnership

Prepared by

Vanasse Hangen Brustlin, Inc.

Normandeau Associates, Inc.

Segal DiSarcina Associates

Fay, Spofford & Thorndike, Inc.

Tech Environmental, Inc.

Waterfront Design Associates

Clippership Wharf

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Appendices

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EOEA # 5866

February 1988

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* These Appendices are bound in the main volume of this Final EIR, which accompanies this Technical Appendices document.

Appendix C—Transportation

The following Appendix supplements the discussion of transportation presented in Chapter IVA of the main volume of this Final EIR. This Appendix includes the following materials:

A. Intersection Traffic Counts
B. Trip Generation
C. Traffic Volume Line Diagrams
D. Level of Service and Sum of Entering Volumes
E. Accident Data

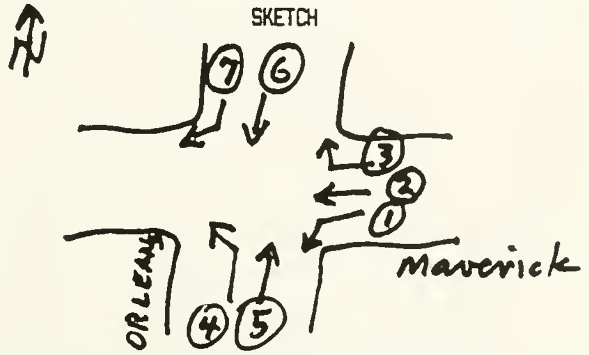
A. Intersection Traffic Counts

A-1

Street:	Maverick Street			Orleans St.		Orleans St.							
Direction:	Westbound			Northbound		Southbound							
Movement:	L	S	R	L	S	S	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	2	77	2	0	3	6	1						91
7:15-7:30	4	70	3	1	11	9	0						98
7:30-7:45	8	51	3	12	9	11	3						97
7:45-8:00	7	76	1	9	6	1	4						104
8:00-8:15	3	73	0	12	7	3	1						99
8:15-8:30	8	76	0	14	7	6	3						114
8:30-8:45	5	71	2	14	8	5	5						110
8:45-9:00	5	45	3	15	6	0	3						77
9:00-9:15													0
9:15-9:30													0
Col. Total	42	539	14	77	57	41	20	0	0	0	0	0	790
AM PEAK													
7:45-8:45	23	296	3	49	28	15	13	0	0	0	0	0	427
HOUR										PHF =	0.94		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	7	82	4	12	7	9	10						131
4:15-4:30	4	68	3	7	5	15	10						112
4:30-4:45	5	80	4	6	15	5	8						123
4:45-5:00	7	75	7	6	18	5	10						128
5:00-5:15	7	89	1	7	17	11	9						141
5:15-5:30	7	79	2	7	10	8	9						122
5:30-5:45	6	73	4	7	6	4	17						117
5:45-6:00	4	81	12	7	9	2	6						121
6:00-6:15													0
6:15-6:30													0
Col. Total	47	627	37	59	87	59	79	0	0	0	0	0	995
PM PEAK													
4:30-5:30	26	323	14	26	60	29	36	0	0	0	0	0	514
HOUR										PHF =	0.91		

SKETCH



Date: 05-29 & 06-04, 1986
Day: Thursday & Wednesday
Weather: Clear
By: GPA
Notes:
City: East Boston, Mass.
Location: Maverick & Orleans Streets

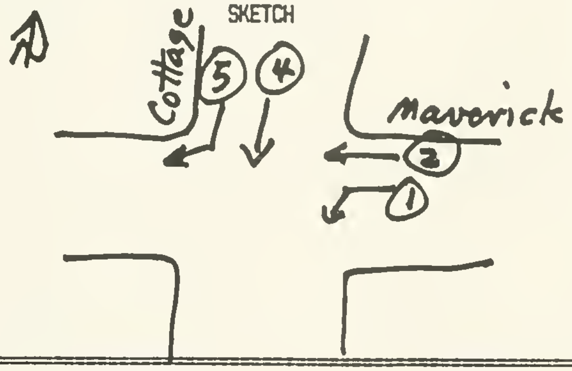
TRAFFIC COUNT SUMMARY | Figure

A-2

Street:	Maverick Street			Cottage Street									
Direction:	Westbound			Southbound									
Movement:	L	S		S	R								Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	4	18		2	1								25
7:15-7:30	1	40		4	8								53
7:30-7:45	0	44		3	6								53
7:45-8:00	1	66		7	5								79
8:00-8:15	3	73		13	8								97
8:15-8:30	5	73		6	6								90
8:30-8:45	3	55		6	8								72
8:45-9:00	6	63		5	8								82
9:00-9:15													0
9:15-9:30													0
Col.Total	23	432	0	46	50	0	0	0	0	0	0	0	551
AM PEAK													
8:00-9:00	17	264	0	30	30	0	0	0	0	0	0	0	341
HOUR										PHF =	0.88		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	5	78		12	8								103
4:15-4:30	5	75		14	15								109
4:30-4:45	2	72		20	10								104
4:45-5:00	6	66		16	12								100
5:00-5:15	9	79		11	10								109
5:15-5:30	1	75		10	5								91
5:30-5:45	6	58		12	7								83
5:45-6:00	4	57		7	8								76
6:00-6:15													0
6:15-6:30													0
Col.Total	38	560	0	102	75	0	0	0	0	0	0	0	775
PM PEAK													
4:15-5:15	22	292	0	61	47	0	0	0	0	0	0	0	422
HOUR										PHF =	0.97		

SKETCH



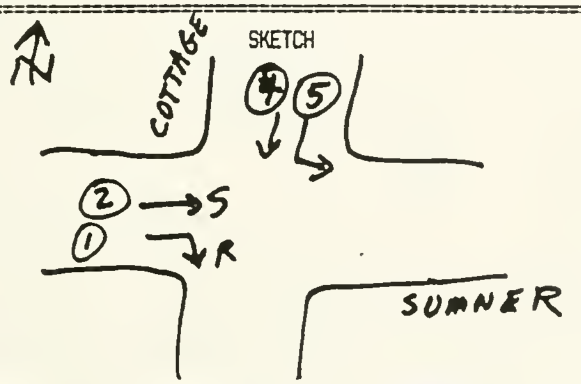
Date: 05-29 & 06-05, 1986
Day: Thursday & Thursday
Weather: Clear & Rainy
By: GPA
Notes:
City: East Boston, Mass.
Location: Maverick & Cottage Streets

TRAFFIC COUNT SUMMARY | Figure

A-3

Street:	Sumner Street			Cottage Street									
Direction:	Eastbound			Southbound									
Movement:	R	S		S	L								
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	15	31		4	3								53
7:15-7:30	16	32		5	4								57
7:30-7:45	7	27		0	2								36
7:45-8:00	11	40		4	0								55
8:00-8:15	13	58		8	5								84
8:15-8:30	10	47		6	1								64
8:30-8:45	11	36		3	7								57
8:45-9:00	11	37		3	6								57
9:00-9:15													0
9:15-9:30													0
Col. Total	94	308	0	33	28	0	0	0	0	0	0	0	463
AM PEAK													
8:00-9:00	45	178	0	20	19	0	0	0	0	0	0	0	262
HOUR										PHF =	0.78		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	17	53		10	7								87
4:15-4:30	24	59		5	3								91
4:30-4:45	15	95		10	7								127
4:45-5:00	14	63		6	1								84
5:00-5:15	14	79		4	7								104
5:15-5:30	13	71		6	7								97
5:30-5:45	14	73		6	2								95
5:45-6:00	12	56		7	3								78
6:00-6:15													0
6:15-6:30													0
Col. Total	123	549	0	54	37	0	0	0	0	0	0	0	763
PM PEAK													
4:30-5:30	56	308	0	26	22	0	0	0	0	0	0	0	412
HOUR										PHF =	0.81		



Date: 05-29 & 06-04, 1986
Day: Thursday & Wednesday
Weather: Clear
By: GPA
Notes:
City: East Boston, Mass.
Location: Sumner & Cottage Streets

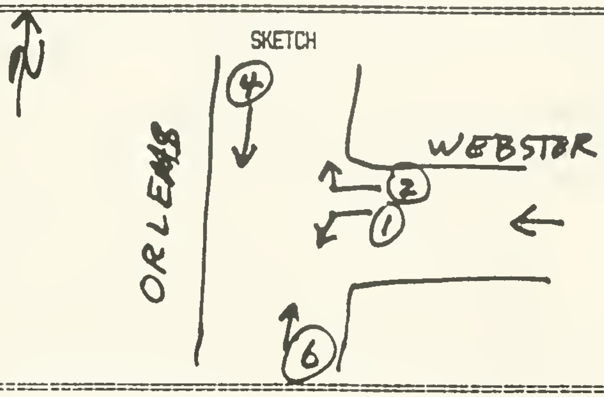
TRAFFIC COUNT SUMMARY | Figure

A-4

Street:	Webster Street			Orleans St.		Orleans St.							
Direction:	Eastbound			Southbound		Northbound							
Movement:	L	R		S		S							Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	0	10		3		2							15
7:15-7:30	2	22		5		6							35
7:30-7:45	0	26		4		8							38
7:45-8:00	2	23		5		9							39
8:00-8:15	0	54		2		6							62
8:15-8:30	0	42		7		12							61
8:30-8:45	0	55		6		15							76
8:45-9:00	1	25		4		16							46
9:00-9:15													0
9:15-9:30													0
Col.Total	5	257	0	36	0	74	0	0	0	0	0	0	372
AM PEAK													
8:00-9:00	1	176	0	19	0	49	0	0	0	0	0	0	245
HOUR										PHF =	0.81		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	0	44		9		14							67
4:15-4:30	0	9		10		9							28
4:30-4:45	0	26		8		10							44
4:45-5:00	2	27		11		19							59
5:00-5:15	0	21		13		13							47
5:15-5:30	1	28		8		5							42
5:30-5:45	1	19		5		11							36
5:45-6:00	0	26		6		11							43
6:00-6:15													0
6:15-6:30													0
Col.Total	4	200	0	70	0	92	0	0	0	0	0	0	366
PM PEAK													
4:00-5:00	2	106	0	38	0	52	0	0	0	0	0	0	198
HOUR										PHF =	0.74		

SKETCH



Date: 05-29 & 06-05, 1986
Day: Thursday & Thursday
Weather: Clear & Rainy
By: GPA
Notes:
City: East Boston, Mass.
Location: Webster & Orleans Streets

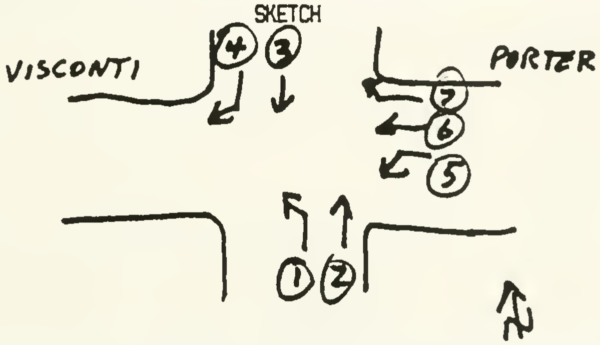
TRAFFIC COUNT SUMMARY | Figure

A-5

Street:	Chelsea St		Chelsea St		Porter St								
Direction:	NB		SB		WB								
Movement:	L	S	S	R	L	S	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	26	30	34	143	2	128	8						371
7:15-7:30	21	36	25	114	1	117	3						317
7:30-7:45	31	61	28	130	0	123	2						375
7:45-8:00	9	28	17	56	0	128	0						238
8:00-8:15	29	46	22	75	0	124	1						297
8:15-8:30	11	23	12	45	2	106	2						201
8:30-8:45	20	43	8	61	1	135	0						268
8:45-9:00	14	51	22	93	0	157	6						343
9:00-9:15													0
9:15-9:30													0
Col. Total	161	318	168	717	6	1018	22	0	0	0	0	0	2410
AM PEAK													
7:00-8:00	87	155	104	443	3	496	13	0	0	0	0	0	1301
HOUR									PHF =	0.87			

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	21	111	39	56	0	61	9						297
4:15-4:30	19	80	41	62	3	64	1						270
4:30-4:45	32	100	25	65	2	76	11						311
4:45-5:00	37	84	33	59	2	65	8						288
5:00-5:15	24	116	30	57	9	83	10						329
5:15-5:30	20	89	29	74	2	60	7						281
5:30-5:45	23	79	41	53	0	63	12						271
5:45-6:00	19	77	59	47	4	116	14						336
6:00-6:15													0
6:15-6:30													0
Col. Total	195	736	297	473	22	588	72	0	0	0	0	0	2383
PM PEAK													
5:00-6:00	86	361	159	231	15	322	43	0	0	0	0	0	1217
HOUR									PHF =	0.91			

SKETCH



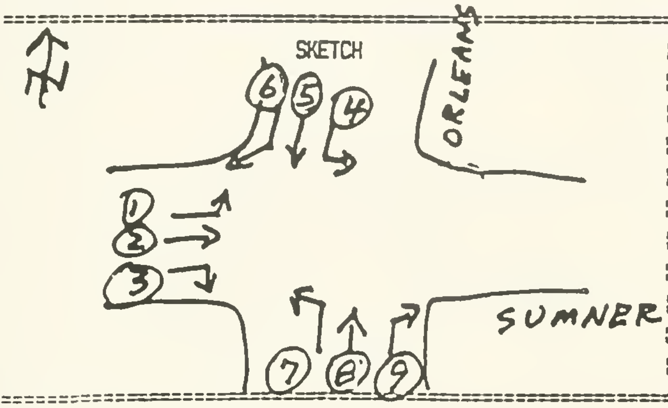
Date:	May 20, 1986
Day:	Tuesday
Weather:	Cloudy
By:	G.P.
Notes:	
City:	East Boston, MA
Location:	Porter & Chelsea— N of Expressway

TRAFFIC COUNT SUMMARY | Figure

A-6

Street:	Sumner Street			Orleans Street			Orleans Street						
Direction:	Eastbound			Southbound			Northbound						
Movement:	L	S	R	L	S	R	L	S	R				Row Totals
Column #	1	2	3	4	5	6	7	8	9	10	11	12	
6:30-6:45													0
6:45-7:00													0
7:00-7:15	6	26	4	3	3	0	23	6	12				83
7:15-7:30	10	24	7	1	0	0	25	2	3				72
7:30-7:45	12	32	1	5	0	1	28	8	2				89
7:45-8:00	14	35	5	4	0	2	20	13	4				97
8:00-8:15	13	40	3	2	0	0	29	10	5				102
8:15-8:30	16	55	9	8	0	2	33	18	6				147
8:30-8:45	9	31	7	9	0	2	23	16	2				99
8:45-9:00	11	36	4	7	0	0	26	20	1				105
9:00-9:15													0
9:15-9:30													0
Col. Total	91	279	40	39	3	7	207	93	35	0	0	0	794
AM PEAK													
8:00-9:00	49	162	23	26	0	4	111	64	14	0	0	0	453
HOUR										PHF =	0.77		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	13	79	19	8	4	2	16	13	5				159
4:15-4:30	13	49	6	5	0	1	9	10	6				99
4:30-4:45	19	79	9	4	5	1	14	22	5				158
4:45-5:00	18	65	10	3	2	1	19	8	8				134
5:00-5:15	21	71	12	3	2	3	26	7	5				150
5:15-5:30	17	72	5	3	1	1	28	11	11				149
5:30-5:45	21	80	7	1	2	2	17	20	6				156
5:45-6:00	15	70	5	2	5	3	22	17	10				149
6:00-6:15													0
6:15-6:30													0
Col. Total	137	565	73	29	21	14	151	108	56	0	0	0	1154
PM PEAK													
5:00-6:00	74	293	29	9	10	9	93	55	32	0	0	0	604
HOUR										PHF =	0.95		



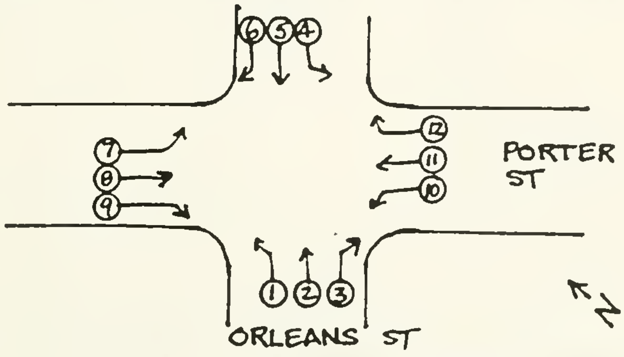
Date: 05-29 & 06-04, 1986
Day: Thursday & Wednesday
Weather: Clear
By: GPA
Notes:
City: East Boston, Mass
Location: Sumner & Orleans Streets

TRAFFIC COUNT SUMMARY | Figure

A-7

Street:	Orleans St			Orleans St			Porter St			Porter St			
Direction:	NB			SB			EB			WB			
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	5	6	11	0	1	1	12	20	8	1	11	6	82
7:15-7:30	11	1	1	0	1	0	3	33	10	2	15	4	81
7:30-7:45	8	0	1	0	2	1	5	23	11	1	11	3	66
7:45-8:00	8	0	3	2	1	1	6	25	3	4	9	2	64
8:00-8:15	6	0	1	0	0	0	3	24	6	2	16	0	58
8:15-8:30	7	2	2	0	1	2	3	23	10	1	9	1	61
8:30-8:45	9	0	1	0	2	3	2	29	4	1	11	0	62
8:45-9:00	6	0	3	0	1	1	0	44	18	2	14	0	89
9:00-9:15													0
9:15-9:30													0
Col.Total	60	9	23	2	9	9	34	221	70	14	96	16	563
AM PEAK 7:00-8:00 HOUR	32	7	16	2	5	3	26	101	32	8	46	15	293
										PHF =	0.82		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	19	2	8	2	1	2	4	46	20	0	23	0	127
4:15-4:30	15	0	8	2	0	4	5	36	14	3	24	0	111
4:30-4:45	12	3	4	3	1	11	6	44	19	2	24	1	130
4:45-5:00	12	3	2	3	1	8	15	46	13	4	31	3	141
5:00-5:15	18	4	3	3	1	9	20	41	12	2	23	3	139
5:15-5:30	17	4	2	7	0	12	70	32	9	1	10	7	171
5:30-5:45	10	7	3	2	1	13	60	30	12	4	13	0	155
5:45-6:00	8	5	5	3	1	19	29	40	9	1	14	1	135
6:00-6:15													0
6:15-6:30													0
Col.Total	111	28	35	25	6	78	209	315	108	17	162	15	1109
PM PEAK 4:45-5:45 HOUR	57	18	10	15	3	42	165	149	46	11	77	13	606
										PHF =	0.89		



Date:	May 20, 1986
Day:	Tuesday
Weather:	
By:	GPA
Notes:	
City:	East Boston, MA
Location:	Porter & Orleans

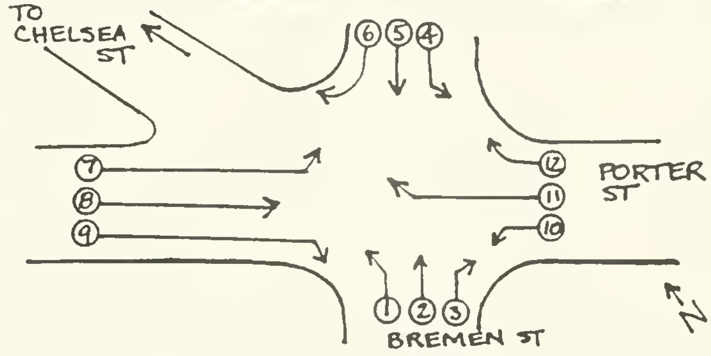
TRAFFIC COUNT SUMMARY

Figure

A-8

Street:	Bremen St			Bremen St			Porter St			Porter St			
Direction:		NB			SB			EB			WB		
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	1	12	1	24	15	1	10	22	4	0	15	2	107
7:15-7:30	2	11	0	24	19	0	17	20	3	0	12	11	119
7:30-7:45	0	18	0	16	12	0	19	26	5	4	6	7	113
7:45-8:00	1	1	0	17	19	0	17	18	12	2	0	7	94
8:00-8:15	0	2	0	18	33	0	14	19	5	1	6	14	112
8:15-8:30	0	1	0	18	35	0	10	17	5	2	5	5	98
8:30-8:45	2	7	0	29	66	0	10	24	4	0	7	7	156
8:45-9:00	0	3	0	9	41	0	11	33	8	4	12	3	124
9:00-9:15													0
9:15-9:30													0
Col.Total	6	55	1	155	240	1	108	179	46	13	63	56	923
AM PEAK													
8:00-9:00	2	13	0	74	175	0	45	93	22	7	30	29	490
HOUR										PHF =	0.79		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	2	24	1	24	15	1	9	39	4	2	10	15	146
4:15-4:30	1	5	0	24	19	0	8	36	8	4	12	16	133
4:30-4:45	5	34	0	16	12	0	10	46	7	3	18	23	174
4:45-5:00	1	34	0	17	19	0	13	43	7	0	21	11	166
5:00-5:15	8	27	0	18	33	0	8	37	7	0	32	12	182
5:15-5:30	8	23	0	18	35	0	8	58	7	1	16	11	185
5:30-5:45	2	19	0	29	66	0	6	54	6	2	14	9	207
5:45-6:00	5	19	0	9	41	0	8	31	6	1	19	11	150
6:00-6:15													0
6:15-6:30													0
Col.Total	32	185	1	155	240	1	70	344	52	13	142	108	1343
PM PEAK													
4:45-5:45	19	103	0	82	153	0	35	192	27	3	83	43	740
HOUR										PHF =	0.89		



Date: May 20, 1986
Day: Tuesday
Weather:
By: G.P.
Notes:
City: East Boston, MA
Location: Porter & Bremen St.

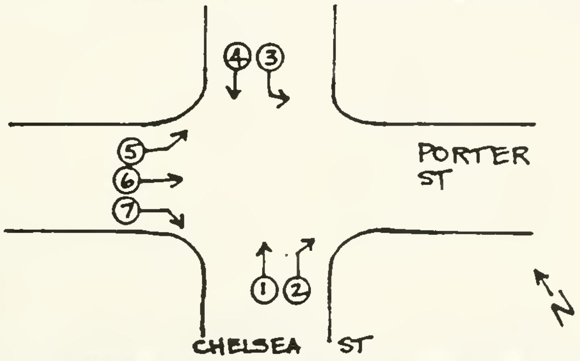
TRAFFIC COUNT SUMMARY

Figure

A-9

Street:	Chelsea St		Chelsea St		Porter St								
Direction:	NB		SB		EB								
Movement:	S	R	L	S	L	S	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	29	2	4	30	40	24	26						155
7:15-7:30	37	4	5	22	41	31	21						161
7:30-7:45	31	4	7	24	39	35	15						155
7:45-8:00	35	4	2	15	29	39	17						141
8:00-8:15	37	4	7	19	43	31	16						157
8:15-8:30	10	2	0	8	13	18	11						62
8:30-8:45	40	3	2	5	23	30	20						123
8:45-9:00	32	4	1	6	34	38	10						125
9:00-9:15													0
9:15-9:30													0
Col.Total	251	27	28	129	262	246	136	0	0	0	0	0	1079
AM PEAK 7:15-8:15 HOUR	140	16	21	80	152	136	69	0	0	0	0	0	614
									PHF =	0.95			

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	64	4	11	41	70	25	29						244
4:15-4:30	47	6	15	50	67	33	30						248
4:30-4:45	58	7	11	53	83	47	19						278
4:45-5:00	67	11	21	51	78	41	23						292
5:00-5:15	65	4	10	55	70	36	15						255
5:15-5:30	34	11	21	45	53	37	25						226
5:30-5:45	47	11	27	27	60	43	11						226
5:45-6:00	48	8	10	48	55	40	20						229
6:00-6:15													0
6:15-6:30													0
Col.Total	430	62	126	370	536	302	172	0	0	0	0	0	1998
PM PEAK 4:15-5:15 HOUR	237	28	57	209	298	157	87	0	0	0	0	0	1073
									PHF =	0.92			



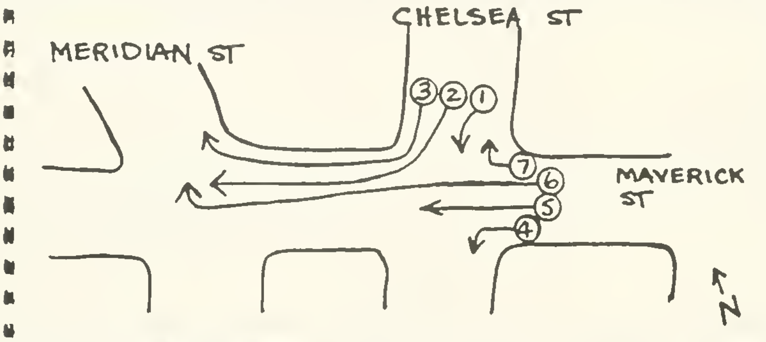
Date:	May 20, 1986
Day:	Tuesday
Weather:	
By:	G.P.
Notes:	
City:	East Boston, MA
Location:	Porter & Chelsea— S of Expressway

TRAFFIC COUNT SUMMARY — Figure

A-10

Street:		Chelsea St				Maverick St							
Direction:		SB				WB							
Movement:	S	R	RR	L	S	SR	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	33	3	13	9	4	34	15						111
7:15-7:30	20	5	5	7	4	41	13						95
7:30-7:45	15	3	6	3	5	49	23						104
7:45-8:00	24	3	6	11	4	45	12						105
8:00-8:15	25	2	7	9	14	39	22						118
8:15-8:30	21	5	8	18	13	47	15						127
8:30-8:45	28	2	8	15	2	61	27						143
8:45-9:00	24	7	10	7	10	45	22						125
9:00-9:15													0
9:15-9:30													0
Col.Total	190	30	63	79	56	361	149	0	0	0	0	0	928
AM PEAK 8:00-9:00 HOUR	98	16	33	49	39	192	86	0	0	0	0	0	513
									PHF =	0.90			

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	32	1	10	9	10	66	24						152
4:15-4:30	31	1	14	7	8	50	26						137
4:30-4:45	31	1	14	20	4	45	20						135
4:45-5:00	23	9	15	9	6	66	31						159
5:00-5:15	23	3	9	13	7	49	26						130
5:15-5:30	32	4	6	8	7	52	7						116
5:30-5:45	20	4	12	13	7	44	18						118
5:45-6:00	24	1	9	13	7	51	25						130
6:00-6:15													0
6:15-6:30													0
Col.Total	216	24	89	92	56	423	177	0	0	0	0	0	1077
PM PEAK 4:00-5:00 HOUR	117	12	53	45	28	227	101	0	0	0	0	0	583
									PHF =	0.92			



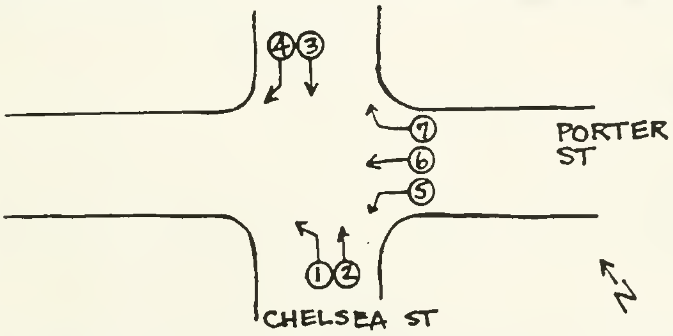
Date:	May 15, 1986
Day:	Thursday
Weather:	Sunny
By:	G.P.
Notes:	
City:	East Boston/Maverick Square
Location:	Maverick and Chelsea Streets

TRAFFIC COUNT SUMMARY | Figure

A-11

Street:	Chelsea St		Chelsea St		Porter St								
Direction:	NB		SB		WB								
Movement:	L	S	S	R	L	S	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	26	30	143	34	2	128	8						371
7:15-7:30	21	36	114	25	1	117	3						317
7:30-7:45	31	61	130	28	0	123	2						375
7:45-8:00	9	28	56	17	0	128	0						238
8:00-8:15	29	46	75	22	0	124	1						297
8:15-8:30	11	23	45	12	2	106	2						201
8:30-8:45	20	43	61	8	1	135	0						268
8:45-9:00	14	51	93	22	0	157	6						343
9:00-9:15													0
9:15-9:30													0
Col.Total	161	318	717	168	6	1018	22	0	0	0	0	0	2410
AM PEAK													
7:00-8:00	87	155	443	104	3	496	13	0	0	0	0	0	1301
HOUR									PHF =		0.87		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	21	111	56	39	0	61	9						297
4:15-4:30	19	80	62	41	3	64	1						270
4:30-4:45	32	100	65	25	2	76	11						311
4:45-5:00	37	84	59	33	2	65	8						288
5:00-5:15	24	116	57	30	9	83	10						329
5:15-5:30	20	89	74	29	2	60	7						281
5:30-5:45	23	79	53	41	0	63	12						271
5:45-6:00	19	77	47	59	4	116	14						336
6:00-6:15													0
6:15-6:30													0
Col.Total	195	736	473	297	22	588	72	0	0	0	0	0	2383
PM PEAK													
5:00-6:00	86	361	231	159	15	322	43	0	0	0	0	0	1217
HOUR									PHF =		0.91		



Date: May 20, 1986
Day: Tuesday
Weather: Cloudy
By: G.P.
Notes:
City: East Boston
Location: Porter & Chelsea— N of Expressway

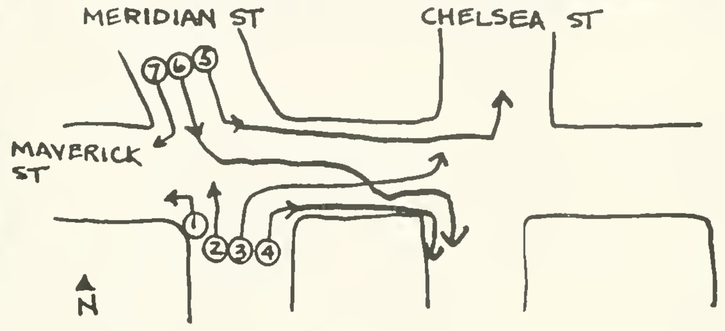
TRAFFIC COUNT SUMMARY

Figure

A-12

Street:	Meridian St				Meridian St								
Direction:	NB				SB								
Movement:	L	S	RL	R	L	S	R						Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	4	56	9	6	1	23	2						101
7:15-7:30	4	54	9	3	2	43	5						120
7:30-7:45	6	51	15	3	3	34	8						120
7:45-8:00	6	69	12	6	0	23	2						118
8:00-8:15	9	59	10	5	4	51	7						145
8:15-8:30	3	67	17	5	1	58	4						155
8:30-8:45	4	45	13	2	3	63	5						135
8:45-9:00	9	88	12	7	1	57	7						181
9:00-9:15													0
9:15-9:30													0
Col.Total	45	489	97	37	15	352	40	0	0	0	0	0	1075
AM PEAK													
8:00-9:00	25	259	52	19	9	229	23	0	0	0	0	0	616
HOUR									PHF =		0.85		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	4	55	26	8	0	54	20						167
4:15-4:30	2	47	18	8	3	47	10						135
4:30-4:45	5	48	17	12	1	70	17						170
4:45-5:00	4	58	28	12	2	49	15						168
5:00-5:15	3	80	18	10	6	61	10						188
5:15-5:30	10	74	23	11	3	56	2						179
5:30-5:45	4	63	8	3	0	50	7						135
5:45-6:00	5	61	18	6	3	47	14						154
6:00-6:15													0
6:15-6:30													0
Col.Total	37	486	156	70	18	434	95	0	0	0	0	0	1296
PM PEAK													
4:30-5:30	22	260	86	45	12	236	44	0	0	0	0	0	705
HOUR									PHF =		0.94		



Date:	May 15, 1986
Day:	Thursday
Weather:	Sunny
By:	G.P.
Notes:	
City:	East Boston/Maverick Square
Location:	Meridian St. at Maverick St.

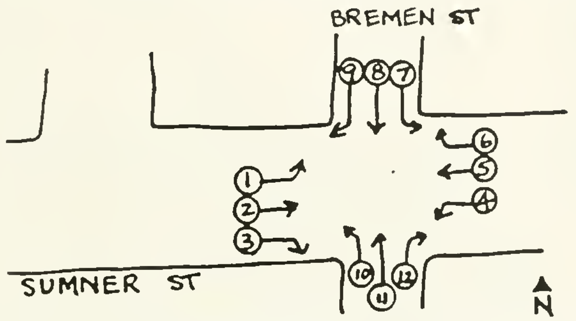
TRAFFIC COUNT SUMMARY | Figure

A-13

Street:		Sumner St			Sumner St			Bremen St			Bremen St		
Direction:		EB			WB			SB			NB		
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	4	24	4	2	22	3	4	0	10	3	1	2	79
7:15-7:30	3	40	12	0	1	7	0	2	7	1	1	0	74
7:30-7:45	5	43	6	0	24	1	4	1	4	3	1	0	92
7:45-8:00	3	40	5	0	18	0	7	1	3	3	0	3	83
8:00-8:15	6	60	7	0	32	1	8	4	3	0	0	3	124
8:15-8:30	3	75	11	0	31	4	10	2	5	4	2	3	150
8:30-8:45	7	55	9	1	9	2	5	0	4	3	3	2	100
8:45-9:00	9	49	6	0	35	5	9	5	12	5	5	1	141
9:00-9:15													0
9:15-9:30													0
Col. Total	40	386	60	3	172	23	47	15	48	22	13	14	843
AM PEAK													
8:00-9:00	25	239	33	1	107	12	32	11	24	12	10	9	515
HOUR										PHF =	0.86		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	5	77	6	2	12	2	13	1	7	2	2	1	130
4:15-4:30	4	85	5	1	16	3	23	2	5	0	6	2	152
4:30-4:45	3	69	4	0	10	2	22	2	8	1	3	9	133
4:45-5:00	7	72	5	0	11	5	16	3	2	0	4	5	130
5:00-5:15	9	73	5	0	11	2	17	1	6	0	3	4	131
5:15-5:30	8	87	3	0	16	2	16	1	5	0	4	2	144
5:30-5:45	1	40	3	0	10	4	12	1	4	2	3	3	83
5:45-6:00	5	73	3	0	9	3	6	2	3	0	1	4	109
6:00-6:15													0
6:15-6:30													0
Col. Total	42	576	34	3	95	23	125	13	40	5	26	30	1012
PM PEAK													
4:15-5:15	23	299	19	1	48	12	78	8	21	1	16	20	546
HOUR										PHF =	0.90		

SKETCH



Date:	May 15, 1986
Day:	Thursday
Weather:	Sunny
By:	G.P.
Notes:	
City:	East Boston, MA
Location:	Bremen St. at Sumner

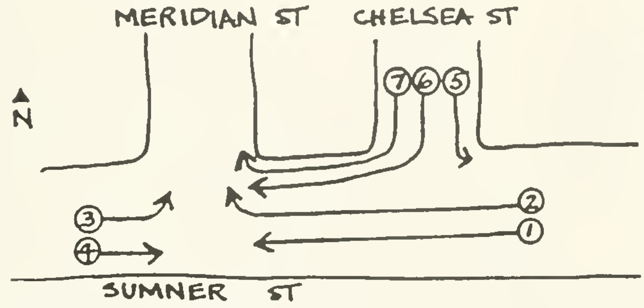
TRAFFIC COUNT SUMMARY | Figure

A-14

Street:	Sumner St		Sumner St		Chelsea St								
Direction:	WB		EB		SB								
Movement:	S	R	L	S	L	RS	RR						Row Totals
Column #	1	2	3	4	5	6	7	8	9	10	11	12	
6:30-6:45													0
6:45-7:00													0
7:00-7:15	4	16	1	3	29	7	31						91
7:15-7:30	3	23	17	17	39	9	33						141
7:30-7:45	8	25	17	11	34	8	25						128
7:45-8:00	3	19	17	12	35	9	33						128
8:00-8:15	11	32	16	17	53	9	36						174
8:15-8:30	18	17	24	30	43	4	47						183
8:30-8:45	7	30	9	15	46	6	21						134
8:45-9:00	4	40	23	18	48	12	43						188
9:00-9:15													0
9:15-9:30													0
Col. Total	58	202	124	123	327	64	269	0	0	0	0	0	1167
AM PEAK													
8:00-9:00	40	119	72	80	190	31	147	0	0	0	0	0	679
HOUR										PHF =	0.90		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	12	13	31	20	66	18	42						202
4:15-4:30	10	14	12	18	45	10	21						130
4:30-4:45	6	20	18	28	75	17	44						208
4:45-5:00	7	20	17	25	61	10	35						175
5:00-5:15	3	22	19	36	70	10	48						208
5:15-5:30	6	23	18	20	60	10	37						174
5:30-5:45	4	30	31	22	60	10	37						194
5:45-6:00	3	21	23	13	62	7	36						165
6:00-6:15													0
6:15-6:30													0
Col. Total	51	163	169	182	499	92	300	0	0	0	0	0	1456
PM PEAK													
4:30-5:30	22	85	72	109	266	47	164	0	0	0	0	0	765
HOUR										PHF =	0.92		

SKETCH



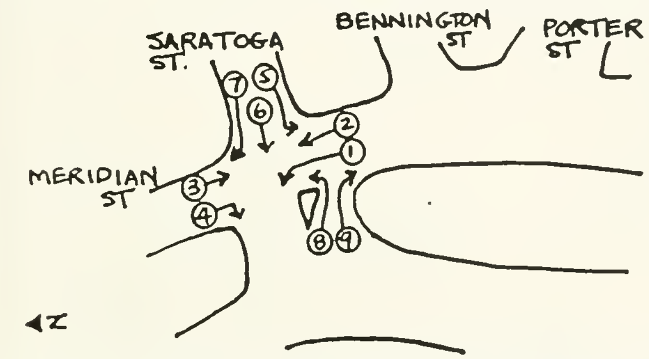
Date: May 15, 1986
Day: Thursday
Weather: Sunny
By: G.P.
Notes:
City: East Boston/Maverick Square
Location: Sumner/Chelsea & Sumner/Meridian

TRAFFIC COUNT SUMMARY | Figure

A-15

Street:	Meridian St.		Meridian St.		Saratoga St.			(Circle)					
Direction:	NB		SB		WB			EB					
Movement:	L	S	S	R	L	S	R	L	R				Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	17	82	93	9	9	6	6	7	14				243
7:15-7:30	10	52	92	1	22	8	9	2	6				202
7:30-7:45	9	74	83	9	24	6	11	3	14				233
7:45-8:00	8	59	95	4	45	6	7	2	16				242
8:00-8:15	10	74	120	7	56	7	3	2	16				295
8:15-8:30	14	83	102	6	44	4	9	2	6				270
8:30-8:45	14	63	110	9	26	6	5	5	16				254
8:45-9:00	10	70	35	5	33	5	7	4	11				180
9:00-9:15													0
9:15-9:30													0
Col.Total	92	557	730	50	259	48	57	27	99	0	0	0	1919
AM PEAK 7:45-8:45 HOUR	46	279	427	26	171	23	24	11	54	0	0	0	1061
									PHF =	0.90			

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	28	115	75	5	6	17	13	22	21				302
4:15-4:30	20	110	81	4	8	18	3	19	21				284
4:30-4:45	24	137	101	13	12	12	18	21	29				367
4:45-5:00	25	106	84	5	10	13	14	10	25				292
5:00-5:15	21	128	58	4	11	22	6	8	13				271
5:15-5:30	21	118	97	8	7	7	9	12	27				306
5:30-5:45	13	122	70	15	8	12	18	10	26				294
5:45-6:00	24	118	79	11	9	15	9	15	18				298
6:00-6:15													0
6:15-6:30													0
Col.Total	176	954	645	65	71	116	90	117	180	0	0	0	2414
PM PEAK 4:00-5:00 HOUR	97	468	341	27	36	60	48	72	96	0	0	0	1245
									PHF =	0.85			



Date: 22-29 May 1986
Day: Thursday-Thursday
Weather: Clear
By:
Notes:
City: East Boston, MA--Central Square
Location: Saratoga St. Approach--
NE side of Square

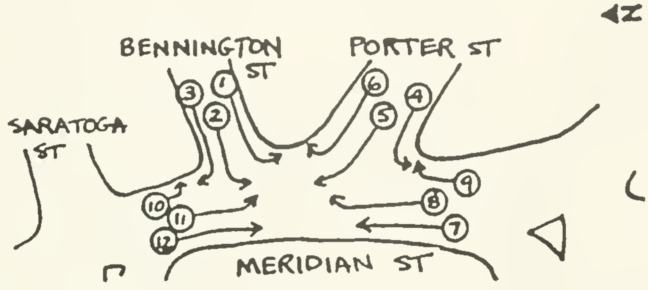
TRAFFIC COUNT SUMMARY | Figure

A-16

Street:	Bennington St.			Porter St.			Meridian St.			Meridian St.			Row Totals
Direction:	WB			WB			NB			SB			
Movement:	L-Por	L-Mer	R	L	R-Mer	R-Ben	S	R-Ben	R-Por	L-Ben	L-Por	S	
Column #	1	2	3	4	5	6	7	8	9	10	11	12	
6:30-6:45													0
6:45-7:00													0
7:00-7:15	51	12	11	5	21	7	56	10	9	19	51	53	305
7:15-7:30	64	27	19	6	12	8	60	19	14	13	55	67	364
7:30-7:45	82	42	28	5	9	4	80	25	18	13	81	109	496
7:45-8:00	48	78	11	7	12	7	57	16	13	4	58	89	400
8:00-8:15	45	31	16	6	8	5	44	26	14	3	71	102	371
8:15-8:30	82	41	9	4	11	3	82	32	9	10	58	103	444
8:30-8:45	53	18	8	1	14	8	44	11	6	7	42	88	300
8:45-9:00	49	26	10	5	15	4	41	16	10	14	26	50	266
9:00-9:15													0
9:15-9:30													0
Col. Total	474	275	112	39	102	46	464	155	93	83	442	661	2946
AM PEAK 7:30-8:30 HOUR	257	192	64	22	40	19	263	99	54	30	268	403	1711
										PHF =	0.86		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	18	49	33	11	38	10	64	49	5	21	30	63	391
4:15-4:30	4	39	26	10	25	11	76	41	12	24	30	70	368
4:30-4:45	5	42	25	8	33	8	68	52	8	35	21	87	392
4:45-5:00	5	38	29	8	34	13	79	40	6	32	19	88	391
5:00-5:15	5	48	35	12	39	9	76	45	4	30	17	92	412
5:15-5:30	3	23	12	9	41	19	93	38	7	31	13	38	327
5:30-5:45	6	20	11	6	30	7	68	40	2	25	11	49	275
5:45-6:00	8	35	22	11	51	3	85	38	5	35	7	54	354
6:00-6:15													0
6:15-6:30													0
Col. Total	54	294	193	75	291	80	609	343	49	233	148	541	2910
PM PEAK 4:15-5:15 HOUR	19	167	115	38	131	41	299	178	30	121	87	337	1563
										PHF =	0.95		

SKETCH



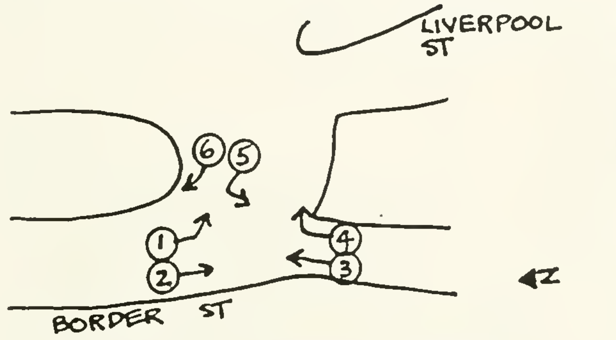
Date: 22-29 May 1986
Day: Thursday-Thursday
Weather: Clear
By: GPA
Notes:
City: East Boston, MA--Central Square
Location: Bennington-Porter approaches--E side of Square

TRAFFIC COUNT SUMMARY | Figure

A-17

Street:	Border St		Border St		(Circle)								
Direction:	SB		NB		WB								
Movement:	L	S	S	R	L	R							Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	13	16	10	2	1	14							56
7:15-7:30	25	17	6	3	4	32							87
7:30-7:45	16	18	13	5	3	19							74
7:45-8:00	22	23	12	4	2	38							101
8:00-8:15	30	30	7	2	10	19							98
8:15-8:30	34	29	23	7	11	17							121
8:30-8:45	32	32	19	2	5	29							119
8:45-9:00	24	9	18	1	9	27							88
9:00-9:15													0
9:15-9:30													0
Col.Total	196	174	108	26	45	195	0	0	0	0	0	0	744
AM PEAK													
7:45-8:45	118	114	61	15	28	103	0	0	0	0	0	0	439
HOUR										PHF =	0.91		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	43	25	39	4	12	50							173
4:15-4:30	52	31	38	14	5	30							170
4:30-4:45	39	18	35	2	12	44							150
4:45-5:00	32	23	23	4	9	37							128
5:00-5:15	44	23	36	2	11	35							151
5:15-5:30	39	18	34	1	21	41							154
5:30-5:45	24	20	15	4	12	39							114
5:45-6:00	25	26	17	3	15	40							126
6:00-6:15													0
6:15-6:30													0
Col.Total	298	184	237	34	97	316	0	0	0	0	0	0	1166
PM PEAK													
4:00-5:00	166	97	135	24	38	161	0	0	0	0	0	0	621
HOUR										PHF =	0.90		



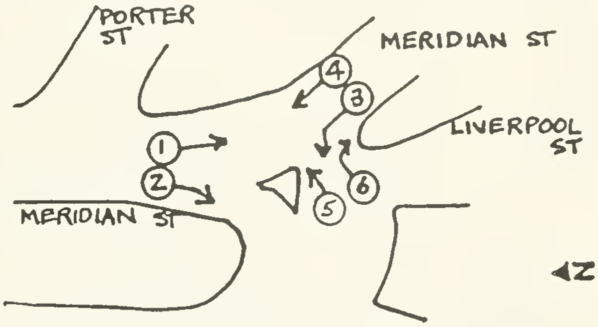
Date: 22-29 May 1986
Day: Thursday-Thursday
Weather: Clear
By: JC
Notes:
City: East Boston, MA—Central Square
Location: Border St. Approach—
S side of Square

TRAFFIC COUNT SUMMARY | Figure

A-18

Street:	Meridian St.		Meridian St.		(Circle)								
Direction:	SB		NB		EB								
Movement:	S	R	L	S	L	R							Row Totals
Column #	1	2	3	4	5	6	7	8	9	10	11	12	
6:30-6:45													0
6:45-7:00													0
7:00-7:15	20	8	48	30	11	33							150
7:15-7:30	73	4	25	74	10	28							214
7:30-7:45	106	10	15	96	8	7							242
7:45-8:00	124	12	35	81	12	20							284
8:00-8:15	165	17	12	94	6	25							319
8:15-8:30	123	10	15	77	11	28							264
8:30-8:45	136	9	23	68	9	29							274
8:45-9:00	100	9	29	71	8	27							244
9:00-9:15													0
9:15-9:30													0
Col.Total	847	79	202	591	75	197	0	0	0	0	0	0	1991
AM PEAK													
7:45-8:45	548	48	85	320	38	102	0	0	0	0	0	0	1141
HOUR										PHF =	0.89		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15	81	5	12	104	29	51							282
4:15-4:30	83	8	23	97	29	49							289
4:30-4:45	89	15	37	105	16	34							296
4:45-5:00	82	9	32	100	10	32							265
5:00-5:15	89	13	38	100	11	39							290
5:15-5:30	80	20	30	96	9	36							271
5:30-5:45	86	17	30	105	6	24							268
5:45-6:00	78	12	32	91	13	23							249
6:00-6:15													0
6:15-6:30													0
Col.Total	668	99	234	798	123	288	0	0	0	0	0	0	2210
PM PEAK													
4:15-5:15	343	45	130	402	66	154	0	0	0	0	0	0	1140
HOUR										PHF =	0.96		



Date: 22-29 May 1986
Day: Thursday-Thursday
Weather: Clear
By: GPA
Notes:
City: East Boston, MA—Central Square
Location: Meridian St. approach—
S end of Square

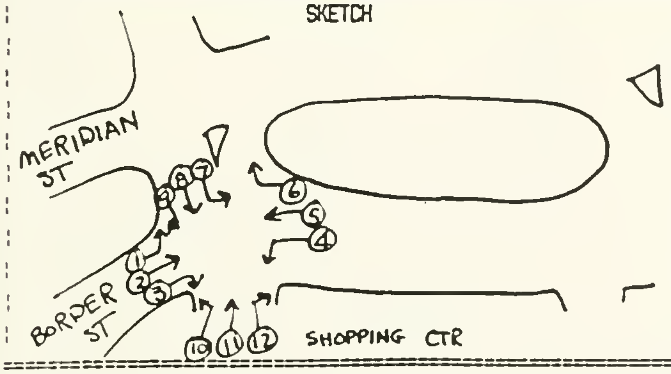
TRAFFIC COUNT SUMMARY | Figure

A-19

Street:	Border St			Border St			(Circle)			Shopping Ctr			
Direction:	SB			NB			WB			EB			
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15	15	14	3	0	20	1	8	4	12	0	1	1	79
7:15-7:30	11	32	2	0	28	1	6	3	15	2	2	0	102
7:30-7:45	15	27	3	2	22	8	8	8	6	0	1	3	103
7:45-8:00	15	43	3	3	29	11	7	5	12	0	1	0	129
8:00-8:15	18	40	1	1	24	6	11	10	8	3	1	0	123
8:15-8:30	6	48	2	3	29	6	9	10	12	2	2	2	131
8:30-8:45	14	54	3	6	32	9	14	13	12	1	3	2	163
8:45-9:00	7	18	1	2	25	9	10	6	11	0	5	5	99
9:00-9:15													0
9:15-9:30													0
Col. Total	101	276	18	17	209	51	73	59	88	8	16	13	929
AM PEAK													
7:45-8:45	53	185	9	13	114	32	41	38	44	6	7	4	546
HOUR										PHF =	0.84		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15							17	21	16				54
4:15-4:30							12	17	9				38
4:30-4:45							12	13	14				39
4:45-5:00							15	12	20				47
5:00-5:15							11	17	17				45
5:15-5:30							8	16	10				34
5:30-5:45							10	17	18				45
5:45-6:00							9	19	27				55
6:00-6:15													0
6:15-6:30													0
Col. Total	0	0	0	0	0	0	94	132	131	0	0	0	357
PM PEAK													
5:00-6:00	0	0	0	0	0	0	38	69	72	0	0	0	179
HOUR										PHF =	0.81		

SKETCH



Date:	22-29 May 1986
Day:	Thursday-Thursday
Weather:	Clear
By:	MMcS-GPA
Notes:	
City:	East Boston, MA—Central Square
Location:	Border St. Approach— N side of Square

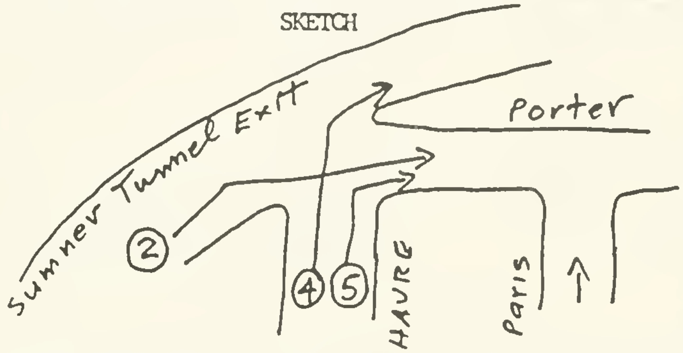
TRAFFIC COUNT SUMMARY | Figure

A-20

Street:		Sumner Tunnel Exit		Havre Street									
Direction:		Outbound		Eastbound									
Movement:		R		S	R								Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15		106		45	15								166
7:15-7:30		113		31	14								158
7:30-7:45		93		33	13								139
7:45-8:00		101		57	29								187
8:00-8:15		119		48	40								207
8:15-8:30		91		51	32								174
8:30-8:45		95		44	27								166
8:45-9:00		104		34	18								156
9:00-9:15													0
9:15-9:30													0
Col.Total	0	822	0	343	188	0	0	0	0	0	0	0	1353
AM PEAK													
7:45-8:45	0	406	ERR	200	128	0	ERR	ERR	ERR	0	ERR	0	734
HOUR										PHF =	0.89		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15		156		58	41								255
4:15-4:30		151		62	37								250
4:30-4:45		105		83	55								243
4:45-5:00		115		61	42								218
5:00-5:15		93		60	34								187
5:15-5:30		137		40	38								215
5:30-5:45		152		53	38								243
5:45-6:00		153		52	31								236
6:00-6:15													0
6:15-6:30													0
Col.Total	0	1062	0	469	316	0	0	0	0	0	0	0	1847
PM PEAK													
4:00-5:00	0	527	ERR	264	175	0	ERR	ERR	ERR	0	ERR	0	966
HOUR										PHF =	0.95		

SKETCH



Date: June 24, 1986
Day: Tuesday
Weather: Clear
By: GPA
Notes: EBOS-C
City: East Boston, Mass.
Location: Sumner Tunnel Exit at Havre & Porter Streets

TRAFFIC COUNT SUMMARY | Figure

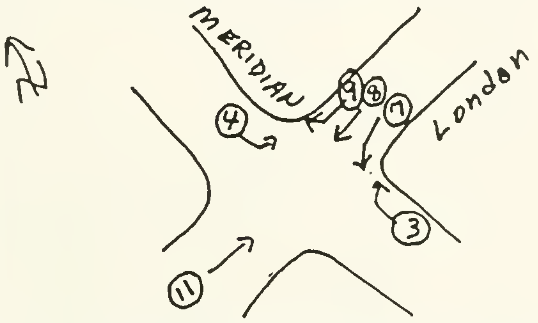
A

A-21

Street:	Meridian Street			Meridian Street			London Street			London Street			
Direction:	Northbound			Southbound			Westbound			Eastbound			
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15			20	0			3	6	1		0		30
7:15-7:30			27	5			2	4	2		0		40
7:30-7:45			8	1			6	1	0		2		18
7:45-8:00			15	1			4	0	1		1		22
8:00-8:15			13	2			6	0	0		1		22
8:15-8:30			8	1			0	0	1		1		11
8:30-8:45			16	1			4	0	1		0		22
8:45-9:00			10	1			0	0	0		1		12
9:00-9:15													0
9:15-9:30													0
Col.Total	0	0	117	12	0	0	25	11	6	0	6	0	177
AM PEAK 7:00-8:00 HOUR	0	0	70	7	0	0	15	11	4	0	3	0	110
									PHF =		0.69		

Column #	1	2	3	4	5	6	7	8	9	10	11	12	Row Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15			13	2			16	2	3		1		37
4:15-4:30			22	6			15	2	0		3		48
4:30-4:45			16	1			10	0	3		1		31
4:45-5:00			18	2			20	1	0		1		42
5:00-5:15			19	5			8	2	0		1		35
5:15-5:30			13	1			12	1	1		1		29
5:30-5:45			13	2			13	2	2		0		32
5:45-6:00			12	1			10	2	2		1		28
6:00-6:15													0
6:15-6:30													0
Col.Total	0	0	126	20	0	0	104	12	11	0	9	0	282
PM PEAK 4:00-5:00 HOUR	0	0	69	11	0	0	61	5	6	0	6	0	158
									PHF =		0.82		

SKETCH



Date: June 24, 1986
Day: Tuesday
Weather: Clear
By: GPA
Notes: EBOS-A
City: East Boston, Mass.
Location: Meridian Street
at London Street

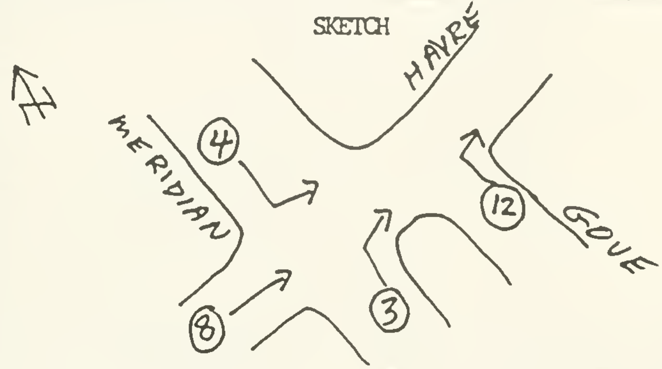
TRAFFIC COUNT SUMMARY | Figure

A-22

Street:		Meridian Street			Meridian Street			Havre Street			Gove Street		
Direction:		Northbound			Southbound			Eastbound			Northbound		
Movement:	L	S	R	L	S	R	L	S	R	L	S	R	Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
6:30-6:45													0
6:45-7:00													0
7:00-7:15			18	37				6				5	66
7:15-7:30			9	28				4				6	47
7:30-7:45			17	51				4				4	76
7:45-8:00			18	54				1				5	78
8:00-8:15			14	36				7				4	61
8:15-8:30			18	49				8				6	81
8:30-8:45			10	32				4				1	47
8:45-9:00			13	33				5				6	57
9:00-9:15													0
9:15-9:30													0
Col.Total	0	0	117	320	0	0	0	39	0	0	0	37	513
AM PEAK													
7:30-8:30	0	0	67	190	0	0	0	20	ERR	0	ERR	19	296
HOUR										PHF =	0.91		

													Row
Column #	1	2	3	4	5	6	7	8	9	10	11	12	Totals
3:30-3:45													0
3:45-4:00													0
4:00-4:15			32	65				6				7	110
4:15-4:30			16	61				7				8	92
4:30-4:45			43	63				12				7	125
4:45-5:00			26	58				6				7	97
5:00-5:15			21	36				11				2	70
5:15-5:30			13	53				9				3	78
5:30-5:45			14	35				4				5	58
5:45-6:00			19	40				10				7	76
6:00-6:15													0
6:15-6:30													0
Col.Total	0	0	184	411	0	0	0	65	0	0	0	46	706
PM PEAK													
4:00-5:00	0	0	117	247	0	0	ERR	31	ERR	0	ERR	29	424
HOUR										PHF =	0.85		

SKETCH



Date: June 24, 1986
Day: Tuesday
Weather: Clear
By: GPA
Notes: EBOS-B
City: East Boston, Mass.
Location: Meridian Street
at Havre & Gove Streets

TRAFFIC COUNT SUMMARY

Figure

B. Trip Generations

B-1

September 4, 1987

CLIPPERSHIP WHARF TRANSPORTATION ISSUES

Technical Memorandum

The purpose of this technical memorandum is to provide information regarding certain transportation issues raised during the review of the Transportation Access Plan for the proposed Clippership Wharf development in East Boston, Mass.

I. Mode Split - Traffic Volumes

It is noted that mode split is a term used to denote the percentage of trips that would be made by various means such as automobile, transit, walking, etc. For purposes of the traffic analysis, mode split is defined as "automobile" and "transit" where automobile refers to the number of potential vehicular trips and transit refers to all non-automobile trips including rapid transit, bus, water taxi, walking, etc.

The estimate of the number of potential site vehicular trips is a function of both the mode split (the percentage of all site trips using a vehicle) and the trip generation rates (the number of vehicle trips made per dwelling unit).

The primary source data for mode split information is the U.S. Bureau of the Census which determines the percent of home-based work trips by transportation mode. The following table is a summary of such information which is shown in the Transportation Access Plan.

Means of Transportation to Work
Percent of Home-Based Person Trips

	GRAND	Auto Persons			Non-Auto Persons				Auto
Census Tract	TOTAL	Driver	Passgr	Total	Transit	Walk	Other	Total	Occ.
3 Zones at site	100	33	11	44	37	17	2	56	1.32
All East Boston	100	32	16	48	36	14	2	52	1.50
Back Bay	100	16	5	21	29	44	6	79	1.16
Charlestown	100	29	12	41	38	19	2	59	1.43
CITYWIDE	100	33	14	47	34	17	2	53	1.21

The Census Bureau data indicates that automobile work trips (those made during the morning and evening peak periods from housing developments) in the City of Boston as a whole are below 50 percent. For East Boston as a whole and for the 3 census zones near the site, the automobile percentages are also below 50 percent.

B-1-a

There are two MBTA stations (Maverick and Orient Heights) which serve all of East Boston with feeder bus service. Only a small portion of all of the residences are within walking distance of these stations. The Clippership site is within a few minutes walking distance of Maverick Station which is the closest station to Downtown Boston. In addition, the Clippership site will provide for water taxi service to Downtown Boston. Considering both the location of the Clippership site and the already high (52%) percentage of existing transit usage in East Boston, it is very likely that the Clippership site can achieve a 50% transit usage.

The projected number of vehicle trips made during the morning and evening peak hours and on an all-day basis is summarized in the following table.

	230 Trip Generation Rates					No. Vehicles	
	ITE Condos (Raw)	ITE 220 Apmts (Raw)	This Study (Raw)	This Study (Adj)	Bay Street (Adj)	DEIR 400 Units	Revised 350 Units
AM Peak Hour	apt						
Into Site	0.10	0.07	0.20	0.10	0.040	40	35
Out of Site	0.40	0.37	0.50	0.25	0.195	100	88
Total	0.50	0.41	0.70	0.35	0.235	140	123
PM Peak Hour							
Into Site	0.40	0.37	0.55	0.275	0.195	110	96
Out of Site	0.20	0.18	0.20	0.100	0.095	40	35
Total	0.60	0.51	0.75	0.375	0.290	140	131
All-Day Total							
In and Out	6.10	5.20	6.00	3.00	2.73	2000	1050

The ITE (Institute of Transportation Engineers) rates for Condos and Apartments do not include the effect of transit usage. The "This Study (Raw)" rates are composites of studies done in Greater Boston and do not include the effect of transit usage. The "This Study (Adj)" rates are factored to account for a 50% transit usage at the site. The "Bay Street (Adj)" rates are rates used in the Transportation Access Plan prepared for the "Bay Street Condominium" project in Dorchester. These rates also include an allowance for transit usage, does not have as good an access to transit and does the Clippership site and, it is noted, are lower rates than the adjusted rates for this study.

Thus, it is believed that the mode split and the resultant automobile trip generation rates used for the Clippership site are both relevant and attainable.

The above table also shows the number of vehicle trips with the orginal (DEIR) 400 dwelling units and the number of vehicle trips for the revised 350 dwelling units. The number of vehicles accessing the site in the peak hours would be less than 100 vehicles in the predominant direction (88 out during the morning and 96 in during the evening). With two access points, the average number of vehicles per hour would be about 45 to 50 vehicles per access way, less than 1 additional vehicle per minute. It is also noted that the projected site traffic volumes are apt to be slightly in excess of those which might actually occur because the traffic analyses have used the higher trip generation rates.

Project E.B. CLIPPERSHIP (B-2)
Subject U.S. Census Data
MODE to Work

File No.
Date
By

Tract	SOV	CPL	Subt AUTO	Pct Auto	TRANSIT #	TRANSIT %	WALK	OTHER	TOTAL	POP
501	458	215	673	48	471	34	230	15	1389	
502	436	240	676	47	550	38	200	21	1447	
503	89	63	152	42	146	40	59	6	363	
504	247	58	305		271		118	17	711	
505	199	72	271		212		114	12	609	
506	199	74	273		230		100	6	609	
507	177	62	239		148		96	0	483	
508	275	131	406		302		115	0	823	
509	435	343	778		523		71	15	1387	
	2515	1258	3773		2853		1103	92	7821	
	32 +	16 =		48		36	14	2		

South of Porter

503
504
505
506

734 + 267 = 1001 | 859 | 391 | 41 | 2292

(44) (37) (17) (2)

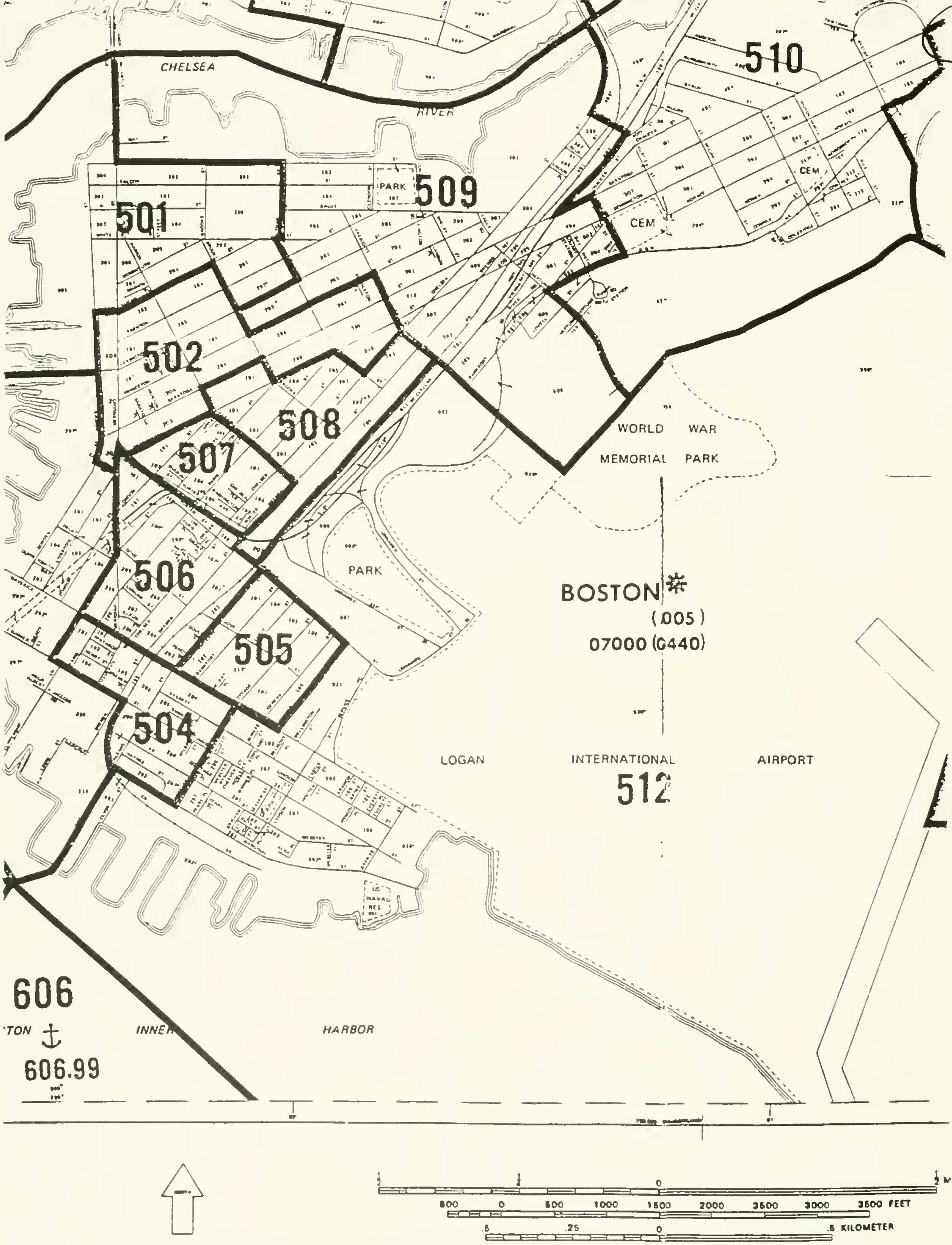
Percents

```
FILE TONYL  (DATA   VEH/SP REL 3.D AT THE H.B.T.A [illegible]                PAGE 001

                                                 HOUSEHOLD INCOME IN 1979
                      MODE TO WORK               ------------------------------------------
       POP   -----------------------------------        2.5-  5K- 7.5- 10K- 12.5 15K-
TRACT  ---   SOV CRPL TRAN WALK OTHR HOME   <2.5  5K   7.5  10K  12.5 -15K 17.5
-----        --- ---- ---- ---- ---- ----   ---- ----  ---- ---- ---- ---- ----
 501   3937  458  215  471  230    8    7    210  343   177  158  136   82  133
 502   3629  436  240  550  200   21    0    112  305   185  105  102  168  118
 503   1784   89   63  146   59    0    6     59  241    87  105   71   20   21
 504   1695  247   58  271  118    0   17     49  191   125   72   77   43   51
 505   1473  199   72  212  114    0   12     25   82    41  116  102   50   32
 506   1352  199   74  230  100    6    0     38  113    92   39   71   44   86
 507   1217  177   62  148   96    0    0     54   77    30   86   58   16   32
 508   1949  275  131  302  119    0    0     80  107    60   86   59  109   79
 509   3282  435  343  523   71   15    0     60  239   154  156  131  131  118
 512   2396  467  158  310  106    0    0    147   58   101   82  112  124   62

                 HOUSEHOLD INCOME IN 1979                            HOUSING UNITS
    -------------------------------------------------------   MED   ------------------------
TR- 17.5 20K- 22.5 25K- 27.5 30-  35-  40-  50-               HHLD  ZERO  ONE  TWO  >2
ACT -20K 22.5 -25K 27.5 -30K 35K  40K  50K  75K >75K         INC   VEHS  VEH  VEH  VEH
--- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----        ----  ----  ---  ---  ---
501  69   54   14   33   34   68   26   11    3    8          8283  758  655   28   36
502  55   69   89   42   20   38   25   24   14    3         10735  729  592    7   31
503   6    6    0   10   124  15   13    4    0    0          6006  620  153   34    0
504  53   33   46   14   25   17   17   18    0    0          9253  375  356   57    6
505  43   45   26    0   42   11    5   10    0    0         11250  203  307   46    4
506  54   31   30    8    7   23    0    0    0    0         11268  325  251   36    0
507  36   48   17    6   11    0    0    9   14    0         10000  226  186   70   11
508  84   42   14   18   21    5    8   18    0    0         12569  412  315   94    9
509  82   28   55   47   33   27   19   25    7    0         10697  543  535   43   31
512  50   30   50   38   10   79   26   40    0    0         12591  375  456   44   25
```

B-4


CHELSEA
RIVER
510
509
PARK
501
502
508
507
506
505
504
CEM
CEM
WORLD WAR
MEMORIAL PARK
PARK
BOSTON
(005)
07000 (0440)
LOGAN INTERNATIONAL AIRPORT
512
US NAVAL RES
606
TON
INNER
HARBOR
606.99
500 0 500 1000 1500 2000 2500 3000 3500 FEET
.5 .25 0 .5 KILOMETER

B-5

CLIPPERSHIP LANDING -- EAST BOSTON

1980 Journey to Work Trips

Sheet 1 of 3

No.		------- All Tract			-----
		Auto	Trans	Other	Totals
1	Avon	15	0	0	15
2	Arlington	17	0	0	17
3	Bedford	28	0	0	26
4	Belmont	12	0	0	12
5	Boston	2701	3323	1280	7304
6	Brockton	33	11	0	44
7	Burlington	16	0	0	16
8	Cambridge	169	139	0	308
9	Chelsea	269	95	26	418
10	Concord	12	0	0	12
11	Dedham	12	0	0	12
12	Everett	182	61	0	243
13	Fitchburg	14	0	0	14
14	Framingham	11	0	0	11
15	Haverhill	14	0	0	14
16	Lincoln	17	0	0	17
17	Lowell	10	0	0	10
18	Lynn	152	0	0	152
19	Malden	193	39	0	232
20	Maynard	13	0	0	13
21	Medford	81	54	0	135
22	Melrose	12	0	0	12
23	Needham	84	0	0	84
24	Newton	46	0	0	46
25	Norwood	9	0	0	9
26	Peabody	11	0	0	11
27	Quincy	29	27	0	56
28	Randolph	11	0	0	11
29	Reading	21	0	0	21
30	Revere	96	10	11	117
31	Salem	44	0	0	44
32	Somerville	41	0	0	41
33	Stoneham	18	0	0	18
34	Waltham	175	13	0	188
35	Watertown	20	0	0	20
36	Weymouth	16	16	0	32
37	Wilmington	45	0	0	45
38	Winthrop	71	0	0	71
39	Woburn	58	0	0	58
	Totals	4778	3788	1319	9911
	Tract Percents	0.48	0.38	0.13	1.00

	------- Tract 501			-----	------ Tract 502			------	------ Tract 503			------	------ Tract 504			------	------ Tract 505			------
	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals
1 Avon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Arlington	17	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Bedford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Belmont	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Boston	399	419	222	1040	435	479	194	1108	170	83	36	289	210	351	91	652	125	242	163	530
6 Brockton	0	0	0	0	0	11	0	11	0	0	0	0	33	0	0	33	0	0	0	0
7 Burlington	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Cambridge	38	0	0	38	26	16	0	42	0	13	0	13	27	0	0	27	20	27	0	47
9 Chelsea	51	0	0	51	43	39	13	95	16	13	0	29	14	0	0	14	0	0	0	26
10 Concord	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Dedham	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Everett	0	24	0	24	16	0	0	16	9	0	0	9	0	37	0	37	0	0	0	0
13 Fitchburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Framingham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Haverhill	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Lincoln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Lowell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lynn	106	0	0	106	9	0	0	9	0	0	0	0	15	0	0	15	0	0	0	0
19 Malden	0	0	0	0	24	18	0	42	0	0	0	0	45	0	0	45	0	0	0	0
20 Maynard	0	0	0	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0
21 Medford	0	0	0	0	45	0	0	45	0	0	0	0	0	0	0	0	19	0	0	19
22 Melrose	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0
23 Needham	0	0	0	0	21	0	0	21	0	0	0	0	0	0	0	0	13	0	0	13
24 Newton	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
25 Norwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Peabody	0	0	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0
27 Quincy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 Randolph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 Reading	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Revere	0	0	0	0	45	0	0	45	0	0	0	0	37	0	0	37	0	0	0	0
31 Salem	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19
32 Somerville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24
33 Stoneham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	18
34 Waltham	43	0	0	43	11	0	0	11	0	0	0	0	17	0	0	17	19	0	0	19
35 Watertown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Weymouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Wilmington	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38 Winthrop	22	0	0	22	20	0	0	20	0	0	0	0	12	0	0	12	0	0	0	0
39 Woburn	0	0	0	0	12	0	0	12	0	0	0	0	13	0	0	13	0	0	0	0
Totals	713	443	222	1378	720	563	207	1490	206	109	36	351	423	388	91	902	271	269	163	729
Tract Percents	0.52	0.32	0.16	1.00	0.48	0.38	0.14	1.00	0.59	0.31	0.10	1.00	0.47	0.43	0.10	1.00	0.37	0.37	0.22	1.00

	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals	Auto	Trans	Other	Totals
1 Avon	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Arlington	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Bedford	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	16	0	0	16
4 Belmont	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12
5 Boston	157	340	138	635	182	137	30	349	187	222	128	537	312	381	140	833	524	669	138	1331
6 Brockton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Burlington	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16
8 Cambridge	0	12	0	12	0	0	0	0	17	16	0	33	29	55	0	84	12	0	0	12
9 Chelsea	0	0	0	0	8	0	0	8	54	30	15	99	59	13	0	72	24	0	0	24
10 Concord	0	0	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	0	0
11 Dedham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Everett	17	0	0	17	40	0	0	40	0	0	0	0	43	0	0	43	57	0	0	57
13 Fitchburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
14 Framingham	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0
15 Haverhill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Lincoln	17	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Lowell	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	0	0	0	0
18 Lynn	0	0	0	0	9	0	0	9	13	0	0	13	0	0	0	0	0	0	0	0
19 Malden	0	0	0	0	23	0	0	23	0	0	0	0	85	0	0	85	16	21	0	37
20 Maynard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Medford	17	0	0	17	0	0	0	0	0	34	0	34	0	20	0	20	0	0	0	0
22 Melrose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12
23 Needham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	50
24 Newton	0	0	0	0	0	0	0	0	10	0	0	10	0	0	0	0	11	0	0	11
25 Norwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9
26 Peabody	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Quincy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	27	0	56
28 Randolph	0	0	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0
29 Reading	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	21	0	0	0	0
30 Revere	0	0	0	0	0	0	0	0	0	0	0	0	14	10	11	35	0	0	0	0
31 Salem	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25
32 Somerville	17	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 Stoneham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Waltham	0	0	0	0	0	13	0	13	38	0	0	38	23	0	0	23	24	0	0	24
35 Watertown	20	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Weymouth	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	16	0	0	16
37 Wilmington	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	32	0	0	32
38 Winthrop	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	8	0	0	8
39 Woburn	0	0	0	0	0	0	0	0	12	0	0	12	0	0	0	0	21	0	0	21
Totals	260	352	138	750	273	150	30	453	354	302	143	799	630	495	151	1276	928	717	138	1783
Tract Percents	0.35	0.47	0.18	1.00	0.60	0.33	0.07	1.00	0.44	0.38	0.18	1.00	0.49	0.39	0.12	1.00	0.52	0.40	0.08	1.00

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                                    1980 CENSUS JOURNEY TO WORK TRIPS                          16:29 FRIDAY, APRIL 18, 1986     1 .
                                  PREPARED BY THE DATA RESOURCE SECTION
                             CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

                                                                                                                              Tota
------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50100 ---------------------------------
 OBS        NAME2           NMSTATE DRVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY  ALL
                                                      A                  T     O       T      O        O        O      O     O
   1 ARLINGTON (TOWN)      MA        17        0        0        0        0     0       0      0        0        0      0     0      17
   2 BOSTON (CITY)         MA       230      103       19       47       94    15     325      0        6        0    201     0    1040
   3 CAMBRIDGE (CITY)      MA        31        7        0        0        0     0       0      0        0        0      0     0      38
   4 CHELSEA (CITY)        MA        29       22        0        0        0     0       0      0        0        0      0     0      51
   5 DEDHAM (TOWN)         MA         0       12        0        0        0     0       0      0        0        0      0     0      12
   6 EVERETT (CITY)        MA         0        0        0        0       24     0       0      0        0        0      0     0      24
   7 HAVERHILL (CITY)      MA        14        0        0        0        0     0       0      0        0        0      0     0      14
   8 LYNN (CITY)           MA       106        0        0        0        0     0       0      0        0        0      0     0     106
   9 NEWTON (CITY)         MA        11        0        0        0        0     0       0      0        0        0      0     0      11
  10 WALTHAM (CITY)        MA        30        0        0       13        0     0       0      0        0        0      0     0      43
  11 WINTHROP (TOWN)       MA         0       22        0        0        0     0       0      0        0        0      0     0      22
-----                              ---      ---       --       --      ---    --     ---      -        -        -    ---     -    ----
TRA                                468      166       19       60      118    15     325      0        6        0    201     0    1378

------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50200 ---------------------------------
OBS  NAME2                  NMSTATE DRVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY  ALL

  12                                  0        0        0        0        0     0       0      0        0        0     21     0      21
  13 BOSTON (CITY)         MA       257      145       .0       33      196     0     283      0        0        0    194     0    1108
  14 BROCKTON (CITY)       MA         0        0        0        0        0     0      11      0        0        0      0     0      11
  15 CAMBRIDGE (CITY)      MA        26        0        0        0        0     0      16      0        0        0      0     0      42
  16 CHELSEA (CITY)        MA        21       12        0       10       28     0      11      0        0        0     13     0      95
  17 EVERETT (CITY)        MA        16        0        0        0        0     0       0      0        0        0      0     0      16
  18 FRAMINGHAM (TOWN)     MA        23        0        0        0        C     0       0      0        0        0      0     0      23
  19 LYNN (CITY)           MA         9        0        0        0        0     0       0      0        0        0      0     0       9
  20 MALDEN (CITY)         MA        24        0        0        0       18     0       0      0        0        0      0     0      42
  21 MAYNARD (TOWN)        MA        13        0        0        0        0     0       0      0        0        0      0     0      13
  22 MEDFORD (CITY)        MA        45        0        0        0        0     0       0      0        0        0      0     0      45
  23 NEEDHAM (TOWN)        MA         0       21        0        0        0     0       0      0        0        0      0     0      21
  24 REVERE (CITY)         MA        11       34        0        0        0     0       0      0        0        0      0     0      45
  25 WALTHAM (CITY)        MA         0        0        0        0        0     0      11      0        0        0      0     0      11
  26 WINTHROP (TOWN)       MA        20        0        0        0        0     0       0      0        0        0      0     0      20
  27 WOBURN (CITY)         MA        12        0        0        0        0     0       0      0        0        0      0     0      12
-----                              ---      ---       -        --      ---     -     ---      -        -        -    ---     -    ----
TRA                                477      212       0        43      242     0     332      0        0        0    228     0    1534
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⑦
6-8-6-7

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                                    1980 CENSUS JOURNEY TO WORK TRIPS                     16:29 FRIDAY, APRIL 18, 1986    2
                                   PREPARED BY THE DATA RESOURCE SECTION
                               CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50300 ----------------------------------
 OBS  NAME2                NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

  28                                  9        0       17        0      0      0       0      0        0        0     0      0     26
  29 BOSTON (CITY)          MA       96       37       37        0     19      0      64      0        0        0    36      0    289
  30 CAMBRIDGE (CITY)       MA        0        0        0        0      0      0      13      0        0        0     0      0     13
  31 CHELSEA (CITY)         MA       16        0        0        0     13      0       0      0        0        0     0      0     29
  32 EVERETT (CITY)         MA        9        0        0        0      0      0       0      0        0        0     0      0      9
  33 PEABODY (CITY)         MA       11        0        0        0      0      0       0      0        0        0     0      0     11
-----                               ---       --       --        -     --      -      --      -        -        -    --      -    ---
TRA                                 141       37       54        0     32      0      77      0        0        0    36      0    377

--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50400 ----------------------------------
 OBS  NAME2                NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

  34 BOSTON (CITY)          MA      179       16        0       15     14      0     337     11        0        0    80      0    652
  35 BROCKTON (CITY)        MA        0        0       33        0      0      0       0      0        0        0     0      0     33
  36 CAMBRIDGE (CITY)       MA       27        0        0        0      0      0       0      0        0        0     0      0     27
  37 CHELSEA (CITY)         MA       14        0        0        0      0      0       0      0        0        0     0      0     14
  38 EVERETT (CITY)         MA        0        0        0        0     37      0       0      0        0        0     0      0     37
  39 LYNN (CITY)            MA       15        0        0        0      0      0       0      0        0        0     0      0     15
  40 MALDEN (CITY)          MA       12        0       33        0      0      0       0      0        0        0     0      0     45
  41 REVERE (CITY)          MA       37        0        0        0      0      0       0      0        0        0     0      0     37
  42 WALTHAM (CITY)         MA       17        0        0        0      0      0       0      0        0        0     0      0     17
  43 WINTHROP (TOWN)        MA       12        0        0        0      0      0       0      0        0        0     0      0     12
  44 WOBURN (CITY)          MA       13        0        0        0      0      0       0      0        0        0     0      0     13
-----                               ---       --       --       --     --      -     ---     --        -        -    --      -    ---
TRA                                 326       16       66       15     51      0     337     11        0        0    80      0    902

--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50500 ----------------------------------
 OBS  NAME2                NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

  45 BOSTON (CITY)          MA       81       25        0       19     53      0     189      0        0        0   163      0    530
  46 CAMBRIDGE (CITY)       MA       20        0        0        0      0      0      27      0        0        0     0      0     47
  47 CHELSEA (CITY)         MA        0        0        0        0      0      0       0      0        0        0    26      0     26
  48 MEDFORD (CITY)         MA       19        0        0        0      0      0       0      0        0        0     0      0     19
  49 NEEDHAM (TOWN)         MA        0        0       13        0      0      0       0      0        0        0     0      0     13
  50 NEWTON (CITY)          MA       14        0        0        0      0      0       0      0        0        0     0      0     14
  51 SALEM (CITY)           MA        0       19        0        0      0      0       0      0        0        0     0      0     19
  52 SOMERVILLE (CITY)      MA        0        0       24        0      0      0       0      0        0        0     0      0     24
  53 STONEHAM (TOWN)        MA       18        0        0        0      0      0       0      0        0        0     0      0     18
  54 WALTHAM (CITY)         MA       19        0        0        0      0      0       0      0        0        0     0      0     19
-----                               ---       --       --       --     --      -     ---      -        -        -   ---      -    ---
TRA                                 171       44       37       19     53      0     216      0        0        0   189      0    729
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                                   1980 CENSUS JOURNEY TO WORK TRIPS                        16:29 FRIDAY, APRIL 18, 1986    3
                                  PREPARED BY THE DATA RESOURCE SECTION
                              CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50600 ---------------------------------
 OBS  NAME2                 NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

   55 AVON (TOWN)             MA        15        0        0        0     0     0        0      0        0        0      0     0     15
   56 BOSTON (CITY)           MA        92       48       17        0    83     0      257      0        0        0    126    12    635
   57 CAMBRIDGE (CITY)        MA         0        0        0        0     0     0       12      0        0        0      0     0     12
   58 EVERETT (CITY)          MA        17        0        0        0     0     0        0      0        0        0      0     0     17
   59 LINCOLN (TOWN)          MA        17        0        0        0     0     0        0      0        0        0      0     0     17
   60 MEDFORD (CITY)          MA        17        0        0        0     0     0        0      0        0        0      0     0     17
   61 SOMERVILLE (CITY)       MA        17        0        0        0     0     0        0      0        0        0      0     0     17
   62 WATERTOWN (TOWN)        MA         0       20        0        0     0     0        0      0        0        0      0     0     20
-----                                  ---       --       --        -    --     -      ---      -        -        -    ---    --    ---
TRA                                    175       68       17        0    83     0      269      0        0        0    126    12    750


--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50700 ---------------------------------
 OBS  NAME2                 NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

   63 BOSTON (CITY)           MA       113       69        0        0    22     0      115      0        0        0     30     0    349
   64 CHELSEA (CITY)          MA         8        0        0        0     0     0        0      0        0        0      0     0      8
   65 EVERETT (CITY)          MA        40       23        0        0     0     0        0      0        0        0      0     0     63
   66 FRAMINGHAM (TOWN)       MA        11        0        0        0     0     0        0      0        0        0      0     0     11
   67 LYNN (CITY)             MA         0        9        0        0     0     0        0      0        0        0      0     0      9
   68 MALDEN (CITY)           MA        23        0        0        0     0     0        0      0        0        0      0     0     23
   69 WALTHAM (CITY)          MA         0        0        0        0    13     0        0      0        0        0      0     0     13
-----                                  ---      ---        -        -    --     -      ---      -        -        -     --     -    ---
TRA                                    195      101        0        0    35     0      115      0        0        0     30     0    476


--------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50800 ---------------------------------
 OBS  NAME2                 NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY ALL

   70 BOSTON (CITY)           MA       102       37       48        0   144     0       78      0        0        0    128     0    537
   71 CAMBRIDGE (CITY)        MA        17        0        0        0    16     0        0      0        0        0      0     0     33
   72 CHELSEA (CITY)          MA         9       28       17        0    30     0        0      0        0        0     15     0     99
   73 CONCORD (TOWN)          MA        12        0        0        0     0     0        0      0        0        0      0     0     12
   74 LYNN (CITY)             MA        13        0        0        0     0     0        0      0        0        0      0     0     13
   75 MEDFORD (CITY)          MA         0        0        0        0    34     0        0      0        0        0      0     0     34
   76 NEWTON (CITY)           MA        10        0        0        0     0     0        0      0        0        0      0     0     10
   77 RANDOLPH (TOWN)         MA        11        0        0        0     0     0        0      0        0        0      0     0     11
   78 WALTHAM (CITY)          MA        38        0        0        0     0     0        0      0        0        0      0     0     38
   79 WOBURN (CITY)           MA        12        0        0        0     0     0        0      0        0        0      0     0     12
-----                                  ---       --       --        -   ---     -       --      -        -        -    ---     -    ---
TRA                                    224       65       65        0   224     0       78      0        0        0    143     0    799
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                                                   1980 CENSUS JOURNEY TO WORK TRIPS                        16:29 FRIDAY, APRIL 18, 1986    4
                                                  PREPARED BY THE DATA RESOURCE SECTION
                                             CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

---------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=50900 ----------------------------------
 OBS  NAME2                   NMSTATE DRVALCNE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY  ALL

   80 BEDFORD (TOWN)             MA        12        0        0        0     0     0       0      0       0        0      0     0     12
   81 BOSTON (CITY)              MA       157       89       54       12    44     0     337      0       0        9    131     0    833
   82 CAMBRIDGE (CITY)           MA        13        0       16        0    26     0      29      0       0        0      0     0     84
   83 CHELSEA (CITY)             MA        14       13       32        0    13     0       0      0       0        0      0     0     72
   84 EVERETT (CITY)             MA        17       14       12        0     0     0       0      0       0        0      0     0     43
   85 LOWELL (CITY)              MA        10        0        0        0     0     0       0      0       0        0      0     0     10
   86 MALDEN (CITY)              MA        46       23       16        0     0     0       0      0       0        0      0     0     85
   87 MEDFORD (CITY)             MA         0        0        0        0     0     0      20      0       0        0      0     0     20
   88 READING (TOWN)             MA         0        0        0       21     0     0       0      0       0        0      0     0     21
   89 REVERE (CITY)              MA        14        0        0        0    10     0       0     11       0        0      0     0     35
   90 WALTHAM (CITY)             MA         0        9        0       14     0     0       0      0       0        0      0     0     23
   91 WEYMOUTH (TOWN)            MA         0        0        0        0     0     0      16      0       0        0      0     0     16
   92 WILMINGTON (TOWN)          MA         0       13        0        0     0     0       0      0       0        0      0     0     13
   93 WINTHROP (TOWN)            MA         9        0        0        0     0     0       0      0       0        0      0     0      9
-----                                     ---      ---      ---       --    --     -     ---     --       -        -    ---     -   ----
TRA                                       292      161      130       47    93     0     402     11       0        9    131     0   1276


---------------------------------- ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=51000 ----------------------------------
 OBS  NAME2                   NMSTATE DRVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY  ALL

   94 BEDFORD (TOWN)             MA         0       16        0        0     0     0       0      0       0        0      0     0     16
   95 BELMONT (TOWN)             MA        12        0        0        0     0     0       0      0       0        0      0     0     12
   96 BOSTON (CITY)              MA       324      147       53        0   178    15     491     13       0        0     95    15   1331
   97 BURLINGTON (TOWN)          MA         0        0       16        0     0     0       0      0       0        0      0     0     16
   98 CAMBRIDGE (CITY)           MA        12        0        0        0     0     0       0      0       0        0      0     0     12
   99 CHELSEA (CITY)             MA        13        0       11        0     0     0       0      0       0        0      0     0     24
  100 EVERETT (CITY)             MA        48        9        0        0     0     0       0      0       0        0      0     0     57
  101 FITCHBURG (CITY)           MA         7        7        0        0     0     0       0      0       0        0      0     0     14
  102 MALDEN (CITY)              MA         0       16        0        0    21     0       0      0       0        0      0     0     37
  103 MELROSE (CITY)             MA        12        0        0        0     0     0       0      0       0        0      0     0     12
  104 NEEDHAM (TOWN)             MA        33       17        0        0     0     0       0      0       0        0      0     0     50
  105 NEWTON (CITY)              MA         0       11        0        0     0     0       0      0       0        0      0     0     11
  106 NORWOOD (TOWN)             MA         9        0        0        0     0     0       0      0       0        0      0     0      9
  107 QUINCY (CITY)              MA        29        0        0        0    12     0      15      0       0        0      0     0     56
  108 SALEM (CITY)               MA        25        0        0        0     0     0       0      0       0        0      0     0     25
  109 WALTHAM (CITY)             MA        24        0        0        0     0     0       0      0       0        0      0     0     24
  110 WEYMOUTH (TOWN)            MA        16        0        0        0     0     0       0      0       0        0      0     0     16
  111 WILMINGTON (TOWN)          MA         0       16       16        0     0     0       0      0       0        0      0     0     32
  112 WINTHROP (TOWN)            MA         8        0        0        0     0     0       0      0       0        0      0     0      8
  113 WOBURN (CITY)              MA         0        0       21        0     0     0       0      0       0        0      0     0     21
-----                                     ---      ---      ---        -   ---    --     ---     --       -        -     --    --   ----
TRA                                       572      239      117        0   211    15     506     13       0        0     95    15   1783
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                                   1980 CENSUS JOURNEY TO WORK TRIPS                         16:29 FRIDAY, APRIL 18, 1986    5
                                 PREPARED BY THE DATA RESOURCE SECTION
                            CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

------------------------------ ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=51100 ------------------------------
OBS  NAME2                  NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4 BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY  ALL

 114 BEDFORD (TOWN)           MA        0       12        0        0      0    0        0      0       0        0       0     0       12
 115 BELMONT (TOWN)           MA        0        0       11        0      0    0        0      0       0        0       0     0       11
 116 BOSTON (CITY)            MA      543      223       73       34    173    0      855      0       0        0     189     0     2090
 117 BURLINGTON (TOWN)        MA        0       11        9        8      0    0        0      0       0        0       0     0       28
 118 CAMBRIDGE (CITY)         MA       12        0        0        0      0    0        0      0       0        0       0     0       12
 119 CANTON (TOWN)            MA       11        0        0        0      0    0        0      0       0        0       0     0       11
 120 CHELMSFORD (TOWN)        MA       14        0        0        0      0    0        0      0       0        0       0     0       14
 121 CHELSEA (CITY)           MA       15        0        0        0     11    0        0      0       0        0       0     0       26
 122 DANVERS (TOWN)           MA       16        0        0        0      0    0        0      0       0        0       0     0       16
 123 EVERETT (CITY)           MA       56        0        0        0      0    0        0      0       0        0       0     0       56
 124 FRAMINGHAM (TOWN)        MA       12        0        0        0      0    0        0      0       0        0       0     0       12
 125 HOLBROOK (TOWN)          MA        0        0        0        0     11    0        9      0       0        0       0     0       20
 126 LYNN (CITY)              MA       19        0        0        0      0    0        0      0       0        0       0     0       19
 127 MALDEN (CITY)            MA       15        0        0        0      0    0        0      0       0        0       0     0       15
 128 MEDFORD (CITY)           MA       24        0        0        0      0    0        0      0       0        0       0     0       24
 129 NATICK (TOWN)            MA       17        0        0        0      0    0        0      0       0        0       0     0       17
 130 QUINCY (CITY)            MA        0       13        0        0     12    0        0      0       0        0       0     0       25
 131 REVERE (CITY)            MA       49        0        0        0      0    0        0      0       0        0       0     0       49
 132 SOMERVILLE (CITY)        MA       26        0        0        0      0    0        0      0       0        0       0     0       26
 133 STONEHAM (TOWN)          MA       15        0        0        0      0    0        0      0       0        0       0     0       15
 134 WATERTOWN (TOWN)         MA        8        0        0        0      0    0        0      0       0        0       0     0        8
 135 WINTHROP (TOWN)          MA        0       23        0        0      0    0        0      0       0        0       0     0       23
-----                                 ---      ---       --       --    ---    -      ---      -       -        -     ---     -     ----
TRA                                   852      282       93       42    207    0      864      0       0        0     189     0     2529


------------------------------ ORIGS=MA   ORIGC=SUFFOLK   NAMEO=BOSTON (CITY)   RES TRACT=51200 ------------------------------
                                        D      C      C      C             R            M             O
                                  N     R      A      A      A             A       T    T     B       T
                                  M     V      R      R      R             I    S  A    R     I       H
               N                  S     A      P      P      P             L    U  X    C     C       E
               A                  T     L      O      O      O             R    B  I    Y     Y   W   R
       O       M                  A     O      O      O      O       B     O    W  C    C     C   A   W       A
       B       E                  T     N      L      L      L       U     A    A  A    L     L   L   A       L
       S       2                  E     E      2      3      4       S     D    Y  B    E     E   K   Y       L

      136      BOSTON (CITY)      MA   382     60     40     10     73     0  137  0    0     0  48   0     750
      137      CAMBRIDGE (CITY)   MA    24     13      0      0      0     0    0  0    0     0   0   0      37
      138      CHELSEA (CITY)     MA    19      0      0      0      0     0    0  0    0     0   0   0      19
      139      EVERETT (CITY)     MA     0      0      0      0     20     0   39  0    0     0   0   0      59
      140      FRAMINGHAM (TOWN)  MA    12      0     14      0      0     0    0  0    0     0   0   0      26
      141      LOWELL (CITY)      MA     0      0      0      0      0    15    0  0    0     0   0   0      15
      142      LYNN (CITY)        MA    27      0      0      0      0     0    0  0    0     0   0   0      27
      143      MALDEN (CITY)      MA     0      0      0      0      0     0    0  0    0     0  12   0      12
      144      MEDFORD (CITY)     MA    24      0      0      0      0     0    0  0    0     0   0   0      24
      145      QUINCY (CITY)      MA     0      0     15      0      0     0    0  0    0     0   0   0      15
      146      REVERE (CITY)      MA    12      0      0      0      0     0    0  0    0     0   0   0      12
      147      WINTHROP (TOWN)    MA    20      0      0      0      0     0    0  0    0     0   0   0      20
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                                        1980 CENSUS JOURNEY TO WORK TRIPS                          16:29 FRIDAY, APRIL 18, 1986    6
                                        PREPARED BY THE DATA RESOURCE SECTION
                                    CENTRAL TRANSPORTATION PLANNING STAFF  BOSTON, MA

------------------------------ ORIGS=MA   ORIGC=SUFFOLK   NAMED=BOSTON (CITY)   RES TRACT=51200 ---------------------------------
OBS   NAME2 NMSTATE ORVALONE CARPOOL2 CARPOOL3 CARPOOL4  BUS RAILROAD SUBWAY TAXICAB MTRCYCLE BICYCLE WALK OTHERWAY   ALL

-----                  ----     ----      ---      ---  ----      --    ----      --        -       -  ----       --   -----
TRA                     520       73       69       10    93      15     176       0        0       0    60        0    1016
NAMED                  4413     1464      667      236  1442      45    3697      35        6       9  1508       27   13549
ORIGC                  4413     1464      667      236  1442      45    3697      35        6       9  1508       27   13549
ORIGS                  4413     1464      667      236  1442      45    3697      35        6       9  1508       27   13549
                       ====     ====      ===      ===  ====      ==    ====      ==        =       =  ====       ==   =====
                       4413     1464      667      236  1442      45    3697      35        6       9  1508       27   13549
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FILE: CTIHS2RF OUTPUT   A                 VM/SP CONVERSATIONAL MONITOR SYSTEM                              PAGE 004

APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                       01/18/85        PAGE    2

FILE   CEARTUN  (CREATION DATE = 01/18/85)

RLZON    RESIDENCE STUDY ZONE
                                                 RELATIVE    ADJUSTED   CUMULATIVE
                                     ABSOLUTE   FREQUENCY   FREQUENCY    ADJ FREQ
CATEGORY LABEL              CODE   FREQUENCY   (PERCENT)   (PERCENT)   (PERCENT)
ACTON                          1         23         0.2         0.2         0.2
ARLINGTON                      2         93         0.9         1.0         1.3
ASHLAND                        3         16         0.2         0.2         1.4
BEDFORD                        4          4         0.0         0.0         1.5
BELLINGHAM                     5         12         0.1         0.1         1.6
BELMONT                        6         15         0.1         0.2         1.8
BEVERLY                        7         98         0.9         1.0         2.7
BRAINTREE                     11         55         0.5         0.6         3.3
BROOKLINE                     12         39         0.4         0.4         3.7
BURLINGTON                    13          7         0.1         0.1         3.8
CAMBRIDGE                     14         77         0.8         0.8         4.7
CANTON                        15         18         0.2         0.2         4.8
CHELSEA                       17        181         1.8         2.0         6.8
CONCORD                       19         25         0.2         0.3         7.1
DANVERS                       20         82         0.8         0.9         8.0
DEDHAM                        21         22         0.2         0.2         8.2
DOVER                         22         11         0.1         0.1         8.3
DUXBURY                       23         31         0.3         0.3         8.7
EVERETT                       25        222         2.2         2.4        11.1
FOXBOROUGH                    26          2         0.0         0.0        11.1
FRAMINGHAM                    27         26         0.3         0.3        11.4
GLOUCESTER                    29         33         0.3         0.4        11.8
APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                       01/18/85        PAGE    3

FILE   CEARTUN  (CREATION DATE = 01/18/85)

HAMILTON                      30         24         0.2         0.3        12.0
HANOVER                       31         24         0.2         0.3        12.3
HINGHAM                       32         43         0.4         0.5        12.7
HOLLISTON                     34          9         0.1         0.1        12.8
HULL                          37         23         0.2         0.3        13.1
IPSWICH                       38         33         0.3         0.4        13.5
LEXINGTON                     39         36         0.4         0.4        13.9
LINCOLN                       40          4         0.0         0.0        13.9
LYNN                          42        393         3.8         4.3        18.2
LYNNFIELD                     43         36         0.4         0.4        18.6
MALDEN                        44        251         2.5         2.7        21.3
MANCHESTER                    45          6         0.1         0.1        21.4
MARBLEHEAD                    46        200         2.0         2.2        23.5
MARLBOROUGH                   47          2         0.0         0.0        23.6
MARSHFIELD                    48         31         0.3         0.3        23.9
MEDFORD                       51        147         1.4         1.6        25.5
MELROSE                       53        157         1.5         1.7        27.2
MIDDLETON                     54         24         0.2         0.3        27.5
MILFORD                       55          5         0.1         0.1        27.6
MILLIS                        56          5         0.1         0.1        27.6
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FILE: [illegible] OUTPUT   A                 VM/SP CONVERSATIONAL MONITOR SYSTEM                    PAGE 005

MILTON                 57      18        0.2      0.2      27.9
NAHANT                 58      44        0.4      0.5      28.3
NATICK                 59      23        0.3      0.3      28.6
NEEDHAM                60       3        0.0      0.0      28.6
NEWTON                 61      67        0.7      0.7      29.4
APRIL 1984 LOGAN ARPT EMPLOYEES BY RESIDENCE AND MODE                          01/18/85      PAGE    4

FILE   CLARION  (CREATION DATE = 01/18/85)

NORTH READING          63      12        0.1      0.1      29.5
NORWELL                64      27        0.3      0.3      29.9
NORWOOD                65      19        0.2      0.2      30.0
PEABODY                66     241        2.4      2.6      32.6
PEMBROKE               67      11        0.1      0.1      32.7
QUINCY                 68     176        1.7      1.9      34.6
RANDOLPH               69      40        0.4      0.4      35.1
READING                70      90        0.9      1.0      36.1
REVERE                 71     617        6.1      6.7      42.9
ROCKLAND               72      29        0.3      0.3      43.1
ROCKPORT               73       8        0.1      0.1      43.2
SALEM                  74     137        1.3      1.5      44.7
SAUGUS                 75     246        2.4      2.7      47.4
SCITUATE               76      53        0.5      0.6      48.0
SOMERVILLE             79     103        1.0     .1.1      49.1
STONEHAM               81      92        0.9      1.0      50.1
STOUGHTON              82       9        0.1      0.1      50.2
SUDBURY                84       9        0.1      0.1      50.3
SWAMPSCOTT             85     149        1.5      1.6      51.9
TOPSFIELD              86     101        1.0      1.1      53.0
WAKEFIELD              87      98        1.0      1.1      54.1
WALPOLE                88      10        0.1      0.1      54.2
WALTHAM                89      54        0.5      0.6      54.8
WATERTOWN              90      24        0.2      0.3      55.1
WAYLAND                91       2        0.0      0.0      55.1
APRIL 1984 LOGAN ARPT EMPLOYEES BY RESIDENCE AND MODE                          01/18/85      PAGE    5

FILE   CLARION  (CREATION DATE = 01/18/85)

WELLESLEY              92      41        0.4      0.4      55.5
WENHAM                 93       7        0.1      0.1      55.6
WESTON                 94       5        0.1      0.1      55.7
WESTWOOD               95       2        0.0      0.0      55.7
WEYMOUTH               96      97        1.0      1.1      56.7
WILMINGTON             97      54        0.5      0.6      57.3
WINCHESTER             98      35        0.4      0.4      57.7
WINTHROP               99     792        7.8      8.6      66.3
WOBURN                100      43        0.4      0.5      66.8
ALLSTON               102      66        0.6      0.7      67.5
CHARLESTOWN           103      32        0.3      0.3      67.8
DORCH-MATTAP          104     144        1.4      1.6      69.4
EAST BOSTON           105     677        6.6      7.4      76.8
CENTRAL BOSTON        106     404        4.0      4.4      81.2
HYDE PARK             107      27        0.3      0.3      81.5
ROXBURY               108      34        0.3      0.4      81.9
SOUTH BOSTON          109      50        0.5      0.5      82.4
```

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FILE: CITUSZN  OUTPUT   A                 VM/SP CONVERSATIONAL MONITOR SYSTEM                        PAGE 006

JP - W ROXBURY           110     69        0.7       0.8       83.2
N SHORE EXPRR            112    214        2.1       2.3       85.5
NORTH EXPRR              113    226        2.2       2.5       88.0
NORTHWEST EXPRR          114     33        0.3       0.4       88.4
WEST TURNPK              115      2        0.0       0.0       88.4
SOUTHWEST EXPRR          116     61        0.6       0.7       89.3
S SHORE EXPRR            117     37        0.4       0.4       89.7
OTHER MASS               122    264        2.6       2.9       92.5
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                            01/18/85      PAGE    6

FILE   CEN-TUN  (CREATION DATE = 01/18/85)

CONNECTICUT              123     19        0.2       0.2       92.7
MAINE                    124     69        0.7       0.8       93.5
NEW HAMPSHIRE            125    462        4.5       5.0       98.5
NEW YORK                 126     11        0.1       0.1       98.7
RHODE ISLAND             127     81        0.8       0.9       99.5
REST OF WORLD            129     42        0.4       0.5      100.0
                           0   1030       10.1    MISSING     100.0
                              -------   -------   -------
                       TOTAL  10205      100.0     100.0

VALID CASES     9177       MISSING CASES  1030
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                            01/18/85      PAGE    7

FILE   CEAPTUN  (CREATION DATE = 01/18/85)

AGGRIG     AGG RESIDENCE ZONE
                                        RELATIVE   ADJUSTED  CUMULATIVE
                               ABSOLUTE FREQUENCY  FREQUENCY   ADJ FREQ
CATEGORY LABEL          CODE  FREQUENCY (PERCENT)  (PERCENT)  (PERCENT)
                           1     404       4.0       4.4        4.4
                           2    4186      41.0      45.6       50.0
                           3     520       5.1       5.7       55.7
                           4     220       2.2       2.4       58.1
                           5     248       2.4       2.7       60.8
                           6     541       5.3       5.9       66.7
                           7     795       7.8       8.7       75.3
                           8     406       4.0       4.4       79.8
                           9      84       0.8       0.9       80.7
                          10     145       1.4       1.6       82.3
                          11      84       0.8       0.9       83.2
                          12     595       5.8       6.5       89.7
OTHER NE                  13     907       8.9       9.9       99.5
OTHER US                  14      42       0.4       0.5      100.0
                          -3       7       0.1    MISSING     100.0
                           0    1023      10.0    MISSING     100.0
                              -------   -------   -------
                       TOTAL  10205      100.0     100.0

VALID CASES     9177       MISSING CASES  1030
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                            01/18/85      PAGE    8

CPU TIME REQUIRED..    0.91 SECONDS
```

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FILE  CTIUS2II OUTPUT   A                VM/SP CONVERSATIONAL MONITOR SYSTEM                               PAGE 009

(CONTINUED)
APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                    01/18/85          PAGE   11

FILE    CEARTON  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
     AGGRIG    AGG RESIDENCE ZONE                                   BY  MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE  3 OF  3

                    MODE
          COUNT  I
        ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER      ROW
        COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND WI MBTA                      BUS                TOTAL
        TOT PCT  I    1   I    2   I    3   I    4   I    5   I    6   I    7   I    8   I    9   I   10   I
AGGRIG  ---------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            -3   I     7M I     0M I     0M I     0M I     0M I     0M I     0M I     0M I     0M I     0M I      7M
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.0
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             0   I   844M I    91M I    20M I     4M I     9M I    11M I    15M I     6M I     2M I    22M I   1023M
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.0
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
         COLUMN     7047      954      575      151       31      107       52       10       16      224      9177
          TOTAL     76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4     100.0
NUMBER OF MISSING OBSERVATIONS =    1029
APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                    01/18/85          PAGE   12

FILE    CEARTON  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
     MELZON    RESIDENCE STUDY ZONE                                 BY  MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE  1 OF 15

                    MODE
          COUNT  I
        ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER      ROW
        COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND WI MBTA                      BUS                TOTAL
        TOT PCT  I    1   I    2   I    3   I    4   I    5   I    6   I    7   I    8   I    9   I   10   I
MELZON  ---------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             1   I      0 I     23 I      0 I      0 I      0 I      0 I      0 I      0 I      0 I      0 I      23
  ACTON          I   0.0  I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                 I   0.0  I   2.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.0  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             2   I     72 I      0 I     12 I      7 I      0 I      0 I      0 I      0 I      0 I      2 I      93
  ARLINGTON      I  77.5  I   0.0  I  12.8  I   7.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.5  I    1.0
                 I   1.0  I   0.0  I   2.1  I   4.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.1  I
                 I   0.8  I   0.0  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             3   I     15 I      0 I      0 I      0 I      0 I      0 I      0 I      0 I      0 I      0 I      15
  ASHLAND        I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                 I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
```

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FILE: CTIHSTRS OUTPUT   A              VM/SP CONVERSATIONAL MONITOR SYSTEM                PAGE 010

                   4  I      4  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      4
   BEDFORD            I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0
                      I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                      I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                   5  I      6  I      7  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     12
   BELLINGHAM         I   47.3  I   52.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.1
                      I    0.1  I    0.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                      I    0.1  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                   5  I     15  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     15
   BELMONT            I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.2
                      I    0.2  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                      I    0.2  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                   7  I     82  I      7  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     88
   BEVERLY            I   92.5  I    7.5  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    1.0
                      I    1.2  I    0.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                      I    0.9  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
              COLUMN      7047      954       575       151        31       107        52        10        16       224      9177
               TOTAL      76.8     10.4       6.3       1.8       0.3       1.2       0.6       0.1       0.2       2.4     100.0
(CONTINUED)
APRIL 1984 LOGAN AWDI EMPLOYEES BY RESIDENCE AND MODE                                 01/18/85          PAGE   13

FILE   CEARTUN  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                                  BY  MODE        COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *   PAGE  2 OF 15

                    MODE
             COUNT  I
           ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA NOR SHUTTLE  TAXI      LIMO      NONMBTA  OTHER         ROW
           COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                      BUS                    TOTAL
           TOT PCT  I      1  I      2  I      3  I      4  I      5  I      6  I      7  I      8  I      9  I     10  I
MELZON      --------I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                 11  I     55  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     55
   BRAINTREE         I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.6
                     I    0.8  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     I    0.6  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                    -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                 12  I     12  I      0  I      8  I     14  I      0  I      0  I      0  I      0  I      0  I      3  I     39
   BROOKLINE         I   33.0  I    0.0  I   22.5  I   37.5  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    7.0  I    0.4
                     I    0.2  I    0.0  I    1.5  I    3.8  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    1.2  I
                     I    0.1  I    0.0  I    0.1  I    0.2  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                    -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                 13  I      0  I      7  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      7
   BURLINGTON        I    0.0  I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.1
                     I    0.0  I    0.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     I    0.0  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                    -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                 14  I     50  I      7  I     21  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     77
   CAMBRIDGE         I   64.6  I    8.5  I   26.8  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.8
                     I    0.7  I    0.7  I    3.6  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                     I    0.5  I    0.1  I    0.2  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             15 I    13  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     18
  CANTON        I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             17 I   122  I    27  I    11  I     0  I     0  I     2  I     0  I     0  I     0  I    18  I    181
  CHELSEA       I  67.7  I  14.7  I   6.3  I   0.0  I   0.0  I   1.3  I   0.0  I   0.0  I   0.0  I  10.0  I    2.0
                I   1.7  I   2.8  I   2.0  I   0.0  I   0.0  I   2.2  I   0.0  I   0.0  I   0.0  I   8.1  I
                I   1.3  I   0.3  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.2  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             19 I    25  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     25
  CONCORD       I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.3
                I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
         COLUMN    7047      954      575      151       31      107       52       10       16      224     9177
          TOTAL    76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN ANDT EMPLOYEES BY RESIDENCE AND MODE                          01/18/85        PAGE  14

FILE   CEAPTUN  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * *
   RESZON    RESIDENCE STUDY ZONE                         BY  MODE      COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE  3 OF 15

                    MODE
          COUNT   I
        ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI     LIMO     NONMBTA  OTHER        ROW
        COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND AND NO MBTA                BUS                TOTAL
        TOT PCT  I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
RESZON  ---------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             20 I    69  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     7  I     92
  DANVERS       I  83.9  I   8.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   8.0  I    0.9
                I   1.0  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.9  I
                I   0.7  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             21 I    19  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     22
  DEDHAM        I  82.3  I  17.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                I   0.3  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             22 I    11  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     11
  DOVER         I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             23 I    14  I    17  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     31
  DUXBURY       I  45.4  I  54.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.3
                I   0.2  I   1.8  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.2  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             25 I   180  I    32  I     2  I     6  I     0  I     0  I     0  I     2  I     0  I     0  I    222
  EVERETT       I  81.3  I  14.2  I   0.9  I   2.7  I   0.0  I   0.0  I   0.0  I   0.9  I   0.0  I   0.0  I    2.4
                I   2.6  I   3.3  I   0.3  I   3.8  I   0.0  I   0.0  I   0.0  I  13.6  I   0.0  I   0.0  I
```

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```
FILE: CTIUS[illegible] OUTPUT   A                   VM/SP CONVERSATIONAL MONITOR SYSTEM                      PAGE 012

                          I   2.0  I   0.3  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                         -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                      26  I     2  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     2
  FOXBOROUGH              I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0
                          I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                          I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                         -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                      27  I    20  I     6  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    26
  FRAMINGHAM              I  77.9  I  22.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.3
                          I   0.3  I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                          I   0.2  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                         -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                  COLUMN      7047      954      575      161       31      107       52       10       16      224     9177
                   TOTAL      76.9     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                    01/18/85         PAGE   15

FILE    CCARTUN  (CREATION DATE = 01/13/85)
* * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                           BY   MODE         COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE  4 OF 15

                   MODE
           COUNT   I
           ROW PCT IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA NOO SHUTTLE  TAXI     LIMO     NONMBTA  OTHER       ROW
           COL PCT IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                   BUS                  TOTAL
           TOT PCT I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
MELZON    ---------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                29  I    32  I     1  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    33
  GLOUCESTER        I  97.5  I   2.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.4
                    I   0.5  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                30  I    18  I     6  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    24
  HAMILTON          I  75.4  I  23.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.3
                    I   0.3  I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   0.2  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                31  I    19  I     5  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    24
  HANOVER           I  78.3  I  21.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.3
                    I   0.3  I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   0.2  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                32  I    43  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    43
  HINGHAM           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.5
                    I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                34  I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     9
  HOLLISTON         I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1
                    I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                37  I    16  I     0  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    23
  HULL              I  69.5  I   0.0  I  30.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.3
```

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```
FILE: CTINSPRT OUTPUT   A                     VM/SP CONVERSATIONAL MONITOR SYSTEM                          PAGE 013

                      I   0.2  I   0.0  I   1.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.2  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   38 I    27  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    33
  IPSWICH             I  80.4  I  19.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.4
                      I   0.4  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.3  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
               COLUMN    7047      954      575      161       31      107       52       10       16      224     9177
                TOTAL    76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN ANOT EMPLOYEES BY RESIDENCE AND MODE                                  01/18/85          PAGE   14

FILE   CSARIUM  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
     RZZON     RESIDENCE STUDY ZONE                                BY  MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *   PAGE  5 OF 15

                    MODE
              COUNT  I
            ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOI SHUTTLE  TAXI     LIMO     NONMBTA  OTHER      ROW
            COL PCT  IVER     S        E SHUTTL E WALK   D ISLAND WO MBTA                     BUS                 TOTAL
            TOT PCT  I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
RZZON        --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   39 I    36  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    36
  LEXINGTON           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.4
                      I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   40 I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     4
  LINCOLN             I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0
                      I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   42 I   354  I    24  I    12  I     0  I     2  I     0  I     0  I     0  I     0  I     0  I   393
  LYNN                I  90.2  I   6.2  I   3.1  I   0.0  I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   4.3
                      I   5.0  I   2.6  I   2.1  I   0.0  I   6.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   3.9  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   43 I    36  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    36
  LYNNFIELD           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.4
                      I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   44 I   206  I    21  I    12  I     6  I     0  I     0  I     0  I     0  I     0  I     7  I   251
  MALDEN              I  82.1  I   8.3  I   4.7  I   2.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.6  I   2.7
                      I   2.9  I   2.2  I   2.0  I   3.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.9  I
                      I   2.2  I   0.2  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   45 I     6  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     6
  MANCHESTER          I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1
                      I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                      I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                     -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                   46 I   196  I    11  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I   200
```

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```
FILE: CTT1523F OUTPUT   A                    VM/SP CONVERSATIONAL MONITOR SYSTEM                         PAGE 014

 MARBLEHEAD         I  92.9  I   5.2  I   2.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.2
                    I   2.6  I   1.1  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                    I   2.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            COLUMN     7047      954      575      161       31      107       52       10       15      224     9177
             TOTAL     76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN ANDT EMPLOYEES BY RESIDENCE AND MODE                                   01/18/85         PAGE   17

FILE    CEARTUN   (CREATION DATE = 01/18/85)
 * * * * * * * * * * * * * * * * * *     C R O S S T A B U L A T I O N    O F    * * * * * * * * * * * * * * * * * * * * * * *
   MELZON     RESIDENCE STUDY ZONE                                  BY    MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE  6 OF 15

                    MODE
            COUNT   I
          ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA NEO SHUTTLE  TAXI     LIMO     NONMBTA  OTHER        ROW
          COL PCT  IVER      S        E SHUTTL E WALK   E ISLAND NO MBTA                    BUS                  TOTAL
          TOT PCT  I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
MELZON    --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              47   I     2  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I       2
 MARLBOROUGH       I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     0.0
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              48   I    22  I     0  I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      31
 MARSHFIELD        I  69.7  I   0.0  I  30.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     0.3
                   I   0.3  I   0.0  I   1.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.2  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              51   I   122  I    10  I     9  I     4  I     0  I     0  I     0  I     0  I     0  I     2  I     147
 MEDFORD           I  82.9  I   7.0  I   6.4  I   2.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.1  I     1.6
                   I   1.7  I   1.1  I   1.6  I   2.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.7  I
                   I   1.3  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              51   I   126  I    23  I     4  I     0  I     4  I     0  I     0  I     0  I     0  I     0  I     157
 MELROSE           I  80.4  I  14.5  I   2.5  I   0.0  I   2.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     1.7
                   I   1.8  I   2.4  I   0.7  I   0.0  I  12.9  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   1.4  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              54   I    24  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      24
 MIDDLETON         I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     0.3
                   I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              55   I     5  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I       5
 MILFORD           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     0.1
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
              56   I     5  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I       5
 MILLIS            I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I     0.1
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            COLUMN     7047      954      575      151       31      107       52       10       16      224     9177
             TOTAL     76.9     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
FALL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                  01/18/85         PAGE   18

FILE   CLASTUD  (CREATION DATE = 01/10/85)
* * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * * *
   RELZON    RESIDENCE STUDY ZONE                              BY  MODE        COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE  7 OF 15

                    MODE
           COUNT   I
           ROW PCT IAUTO DRI AUTO PAS BLUE LIN BLUE LIN META NON SHUTTLE  TAXI      LIMO      NONMPTA  OTHER        ROW
           COL PCT IVER      S        E SHUTTL E WALK    D ISLAND WO MPTA                     BUS                 TOTAL
           TOT PCT I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
RELZON     --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                57 I    18  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     18
  MILTON           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                   I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                56 I    38  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     44
  NAHANT           I  85.1  I  14.9  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.5
                   I   0.5  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.4  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                59 I    29  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     28
  NATICK           I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.3
                   I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                55 I     3  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      3
  NEEDHAM          I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.0
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                51 I    55  I     5  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     67
  NEWTON           I  82.4  I   7.8  I   9.8  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.7
                   I   0.8  I   0.6  I   1.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.6  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                63 I    12  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     12
  NORTH READING    I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                   I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                64 I     9  I     0  I     0  I     0  I     0  I    17  I     0  I     0  I     0  I     0  I     27
  NORWELL          I  35.6  I   0.0  I   0.0  I   0.0  I   0.0  I  64.4  I   0.0  I   0.0  I   0.0  I   0.0  I    0.3
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I  15.9  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            COLUMN     7047      954      575      151       31      107       52       10       16      224     9177
             TOTAL     76.9     10.4      6.3      1.6      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
FALL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                  01/19/85         PAGE   19
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 : CITISZE OUTPUT   A                  VM/SP CONVERSATIONAL MONITOR SYSTEM                   PAGE 016


ILE   LEARTUM  (CREATION DATE = 01/19/85)
 * * * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                                BY  MODE       COMMUTE MODE
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE  8 OF 15

                 MODE
         COUNT   I
       ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER        ROW
       COL PCT  IVER       S       E SHUTTL E WALK   D ISLAND WO MBTA                      BUS                  TOTAL
       TOT PCT  I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
LZON    --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             65 I     9  I     0  I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     19
NORWOOD         I  49.6  I   0.0  I  50.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.2
                I   0.1  I   0.0  I   1.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.1  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             66 I   225  I    13  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     2  I    241
PEABODY         I  93.5  I   5.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.0  I    2.6
                I   3.2  I   1.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.1  I
                I   2.5  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             67 I    11  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     11
PEMBROKE        I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             68 I   159  I     9  I     5  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I    176
QUINCY          I  89.7  I   5.1  I   3.0  I   2.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.9
                I   2.2  I   0.9  I   0.9  I   2.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   1.7  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             69 I    36  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     40
RANDOLPH        I  90.1  I   9.9  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.4
                I   0.5  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             70 I    80  I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     90
READING         I  89.5  I  10.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.0
                I   1.1  I   1.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.9  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             71 I   451  I    85  I    33  I    25  I     5  I    11  I     2  I     0  I     0  I     6  I    617
REVERE          I  73.1  I  13.7  I   5.4  I   4.0  I   0.8  I   1.7  I   0.3  I   0.0  I   0.0  I   0.9  I    6.7
                I   6.4  I   8.9  I   5.8  I  15.3  I  15.6  I   7.9  I   3.7  I   0.0  I   0.0  I   2.5  I
                I   4.9  I   0.9  I   0.4  I   0.3  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.1  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
         COLUMN     7047      954      575      161       31      107       52       10       16      224      9177
          TOTAL     76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4     100.0
(CONTINUED)
APRIL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                01/18/85        PAGE   20

ILE    CEARTUM  (CREATION DATE = 01/18/85)
 * * * * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                                BY  MODE       COMMUTE MODE
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FILE: CTTHS2RE OUTPUT   A                 VM/SP CONVERSATIONAL MONITOR SYSTEM                    PAGE 017

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE  9 OF 15

                 MODE
        COUNT   I
       ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI     LIMO     NONMBTA  OTHER      ROW
       COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                   BUS               TOTAL
       TOT PCT  I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
MELZON          --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            72  I    26  I     0  I     2  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     29
 ROCKLAND       I  91.5  I   0.0  I   6.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.3
                I   0.4  I   0.0  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            73  I     8  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      8
 ROCKPORT       I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            74  I   114  I     6  I     0  I     0  I     0  !    17  I     0  I     0  I     0  I     0  I    137
 SALEM          I  83.4  I   4.2  I   0.0  I   0.0  I   0.0  I  12.5  I   0.0  I   0.0  I   0.0  I   0.0  I    1.5
                I   1.6  I   0.6  I   0.0  I   0.0  I   0.0  I  15.9  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   1.2  I   0.1  I   0.0  I   0.0  I   0.0  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            75  I   219  I    17  I     0  I     4  I     0  I     0  I     0  I     0  I     0  I     7  I    246
 SAUGUS         I  88.6  I   6.9  I   0.0  I   1.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.7  I    2.7
                I   3.1  I   1.3  I   0.0  I   2.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.9  I
                I   2.4  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            76  I    51  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     2  I     58
 SCITUATE       I  87.9  I   6.9  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   4.3  I    0.6
                I   0.7  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.1  I
                I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            77  I    79  I    11  I     5  I     6  I     0  I     0  I     0  I     0  I     0  I     2  I    103
 SOMERVILLE     I  76.6  I  10.3  I   5.5  I   5.8  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   1.9  I    1.1
                I   1.1  I   1.1  I   1.0  I   3.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.9  I
                I   0.9  I   0.1  I   0.1  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            81  I    81  I    11  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     92
 STONEHAM       I  87.6  I  12.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.0
                I   1.1  I   1.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                I   0.9  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
               -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
        COLUMN     7047      956      575      161       31      157       52       10       16      224     9177
         TOTAL     76.8     10.4      6.3      1.8      0.3      1.7      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                          01/19/95          PAGE   21

FILE    CEARTUN  (CREATION DATE = 01/12/85)
* * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * * * *
    MELZON    RESIDENCE STUDY ZONE                              BY  MODE      COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE 10 OF 15

                 MODE
         COUNT   I
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LE: CTUS23C OUTPUT   A                 VM/SP CONVERSATIONAL MONITOR SYSTEM                          PAGE 018

         ROW PCT IAUTO ORI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER       ROW
         COL PCT IVER      S        E SHUTTL E WALK    D ISLAND WO MBTA                     BUS                  TOTAL
         TOT PCT I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
L7ZON    --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            92   I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      9
STOUGHTON        I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                 I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            94   I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I      9
SUDBURY          I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                 I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            95   I   118  I    30  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    149
SWAMPSCOTT       I  79.6  I  20.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.6
                 I   1.7  I   3.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   1.3  I   0.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            96   I   101  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    101
TOPSFIELD        I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.1
                 I   1.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   1.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            97   I    92  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     99
WAKEFIELD        I  93.3  I   6.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    1.1
                 I   1.3  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   1.0  I   0.1  I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            98   I     3  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     10
WALPOLE          I  32.9  I  67.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.1
                 I   0.0  I   0.7  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            99   I    42  I     2  I     9  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     54
WALTHAM          I  78.0  I   4.5  I  17.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.6
                 I   0.6  I   0.3  I   1.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 I   0.5  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
          COLUMN     7047      956      575      161       31      107       52       10       16      224     9177
           TOTAL     76.8     10.4      6.3      1.9      0.3      1.2      0.6      0.1      0.2      2.4    100.0
CONTINUED)
PRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                              01/18/85       PAGE   22

ILE   GEARTUM  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * *
  L7ZON     RESIDENCE STUDY ZONE                               BY  MODE      COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE 11 OF 15

                 MODE
         COUNT   I
         ROW PCT IAUTO ORI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER       ROW
         COL PCT IVER      S        E SHUTTL E WALK    D ISLAND WO MBTA                     BUS                  TOTAL
         TOT PCT I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
L7ZON    --------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
```

```
                                VM/SP CONVERSATIONAL MONITOR SYSTEM
                                                                                    PAGE 019
WATERTOWN      90 I     13  I      7  I      4  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     24
                  I   55.6  I   27.8  I   16.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.3
                  I    0.2  I    0.7  I    0.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.1  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WAYLAND        91 I      2  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      2
                  I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0
                  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WELLESLEY      92 I     32  I      9  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     41
                  I   77.0  I   23.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.4
                  I    0.4  I    1.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.3  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WENHAM         93 I      7  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      7
                  I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.1
                  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WESTON         94 I      5  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      5
                  I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.1
                  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WESTWOOD       95 I      2  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      2
                  I  100.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0
                  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
WEYMOUTH       96 I     91  I      7  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     97
                  I   93.2  I    6.8  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    1.1
                  I    1.3  I    0.7  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                  I    1.0  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                 -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
         COLUMN       7047       954       575       161        31       107        52        10        16       224      9177
          TOTAL       76.8      10.4       6.3       1.8       0.3       1.2       0.6       0.1       0.2       2.4     100.0
(CONTINUED)
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE
                                                                             01/18/85          PAGE  23
FILE   CFARTUN  (CREATION DATE = 01/18/85)
 * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F  * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                                     BY  MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE 12 OF 15

                 MODE
         COUNT  I
        ROW PCT IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA   OTHER
        COL PCT IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                      BUS                 ROW
        TOT PCT I      1  I      2  I      3  I      4  I      5  I      6  I      7  I      8  I      9  I     10  I  TOTAL
MELZON  --------I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
             97 I     44  I      9  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I      0  I     54
WILMINGTON      I   82.8  I   17.2  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.6
                I    0.6  I    1.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
                I    0.5  I    0.1  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I    0.0  I
```

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```
FILE: CTPS23F OUTPUT   A                VM/SP CONVERSATIONAL MONITOR SYSTEM                       PAGE 020

                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                98  I    32   I     4   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     36
 WINCHESTER         I  88.6   I  11.4   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I    0.4
                    I   0.5   I   0.4   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                    I   0.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
                99  I   541   I   129   I    82   I    12   I     0   I     0   I     6   I     0   I     0   I    22   I    792
 WINTHROP           I  68.2   I  16.3   I  10.4   I   1.5   I   0.0   I   0.0   I   0.7   I   0.0   I   0.0   I   2.9   I    8.6
                    I   7.7   I  13.6   I  14.3   I   7.5   I   0.0   I   0.0   I  11.3   I   0.0   I   0.0   I  10.0   I
                    I   5.9   I   1.4   I   0.9   I   0.1   I   0.0   I   0.0   I   0.1   I   0.0   I   0.0   I   0.2   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               100  I    43   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     43
 WOBURN             I 100.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I    0.5
                    I   0.6   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                    I   0.5   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               102  I    39   I     0   I    11   I     9   I     0   I     0   I     0   I     0   I     0   I     7   I     66
 ALLSTON            I  59.9   I   0.0   I  17.1   I  12.9   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I  10.0   I    0.7
                    I   0.6   I   0.0   I   2.0   I   5.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   2.9   I
                    I   0.4   I   0.0   I   0.1   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.1   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               103  I    22   I     0   I    10   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     32
 CHARLESTOWN        I  67.4   I   0.0   I  32.6   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I    0.3
                    I   0.3   I   0.0   I   1.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                    I   0.2   I   0.0   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               104  I    86   I     6   I    31   I     2   I     2   I    15   I     0   I     0   I     0   I     0   I    144
 DORCH-MATTAP       I  59.7   I   5.6   I  21.5   I   1.4   I   1.3   I  10.2   I   0.0   I   0.0   I   0.0   I   0.0   I    1.6
                    I   1.2   I   0.8   I   5.4   I   1.2   I   6.3   I  13.7   I   0.0   I   0.0   I   0.0   I   0.0   I
                    I   0.9   I   0.1   I   0.3   I   0.0   I   0.0   I   0.2   I   0.0   I   0.0   I   0.0   I   0.0   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
            COLUMN      7047      954       575       161        31       107        52        10        16       224       9177
             TOTAL      76.8     10.4       6.3       1.8       0.3       1.2       0.6       0.1       0.2       2.4      100.0
ONTINUED)
IL 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                  01/18/85         PAGE   24

LE   CEAFTUT  (CREATION DATE = 01/18/85)
* * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * *
  RELZON    RESIDENCE STUDY ZONE                                BY  MODE       COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE 13 OF 15

                    MODE
           COUNT   I
           ROW PCT IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER        ROW
           COL PCT IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                     BUS                   TOTAL
           TOT PCT I     1   I     2  I     3   I     4   I     5   I     6   I     7   I     8   I     9   I    10   I
RELZON     --------I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               105  I   361   I   134   I    51   I    21   I     8   I    42   I     6   I     2   I     0   I    52   I    677
 EAST BOSTON        I  53.3   I  19.8   I   7.6   I   3.1   I   1.2   I   6.1   I   1.0   I   0.3   I   0.0   I   7.7   I    7.4
                    I   5.1   I  14.0   I   8.9   I  13.0   I  25.8   I  33.7   I  12.3   I  18.6   I   0.0   I  23.3   I
                    I   3.9   I   1.5   I   0.6   I   0.2   I   0.1   I   0.5   I   0.1   I   0.0   I   0.0   I   0.6   I
                   -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
               106  I   129   I    17   I   158   I    28   I     8   I     4   I    38   I     0   I     0   I    23   I    404
 CENTRAL BOSTON     I  31.7   I   4.2   I  39.1   I   6.9   I   2.0   I   1.0   I   9.4   I   0.0   I   0.0   I   5.7   I    4.4
                    I   1.8   I   1.8   I  27.5   I  17.4   I  25.8   I   3.7   I  72.7   I   0.0   I   0.0   I  10.2   I
```

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                    VM/SP CONVERSATIONAL MONITOR SYSTEM                                   PAGE 021

                I   1.4   I   0.2   I   1.7   I   0.3   I   0.1   I   0.0   I   0.4   I   0.0   I   0.0   I   0.2   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           107  I    25   I     0   I     2   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I    27
 HYDE PARK      I  93.9   I   0.0   I   6.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.3
                I   0.4   I   0.0   I   0.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                I   0.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           108  I    22   I     0   I     9   I     0   I     0   I     0   I     0   I     0   I     0   I     3   I    34
 ROXBURY        I  64.5   I   0.0   I  26.2   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   9.3   I   0.4
                I   0.3   I   0.0   I   1.6   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   1.4   I
                I   0.2   I   0.0   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           109  I    43   I     0   I     7   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I    50
 SOUTH BOSTON   I  85.6   I   0.0   I  14.4   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.5
                I   0.6   I   0.0   I   1.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                I   0.5   I   0.0   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           110  I    33   I     9   I    11   I     0   I     0   I     0   I     0   I     7   I     0   I     9   I    69
 JP - W ROXBURY I  45.0   I  13.7   I  15.2   I   0.0   I   0.0   I   0.0   I   0.0   I   9.5   I   0.0   I  13.6   I   0.8
                I   0.5   I   1.0   I   1.8   I   0.0   I   0.0   I   0.0   I   0.0   I  62.8   I   0.0   I   4.2   I
                I   0.4   I   0.1   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.1   I   0.0   I   0.1   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           112  I   196   I    28   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I   214
 NO SHORE EMRPP I  87.1   I  12.9   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   2.3
                I   2.6   I   2.9   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                I   2.0   I   0.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
         COLUMN     7047       954       575       161        31       107        52        10        16       224      9177
          TOTAL     76.8      10.4       6.3       1.8       0.3       1.2       0.6       0.1       0.2       2.4     100.0
(CONTINUED)
APRIL 1984 LOGAN AHDT EMPLOYEES BY RESIDENCE AND MODE                                 01/19/85       PAGE   25

FILE    CLARTON  (CREATION DATE = 01/18/85)
 * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * *
   MELZON    RESIDENCE STUDY ZONE                                   BY  MODE        COMMUTE MODE
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE 14 OF 15

                MODE
         COUNT  I
       ROW PCT  IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA WOO SHUTTLE  TAXI      LIMO      NONMBTA  OTHER       ROW
       COL PCT  IVER      S        E SHUTTL E WALK   D ISLAND WO MBTA                     BUS                 TOTAL
       TOT PCT  I      1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
MELZON ---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           113  I   202   I    14   I     0   I     9   I     0   I     0   I     0   I     0   I     0   I     2   I   226
 NORTH EMRPP    I  89.3   I   6.1   I   0.0   I   3.8   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.9   I   2.5
                I   2.9   I   1.5   I   0.0   I   5.3   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.9   I
                I   2.2   I   0.2   I   0.0   I   0.1   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           114  I    33   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I    33
 NORTHWEST EMRPP I 100.0  I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.4
                I   0.5   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
                I   0.4   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I
               -I---------I---------I---------I---------I---------I---------I---------I---------I---------I---------I
           115  I     2   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     0   I     2
 WEST EMRPP     I 100.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0   I   0.0
```

B-30

```
                  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             116  I    77  I     4  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     81
  SOUTHWEST EMRPP I  95.0  I   5.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.9
                  I   1.1  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  I   0.8  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             117  I    37  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     37
  ST SHORE EMRPP  I 100.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    0.4
                  I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  I   0.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             122  I   210  I    12  I     0  I     6  I     0  I     0  I     0  I     0  I    12  I    25  I    264
  OTHER MASS      I  79.5  I   4.5  I   0.0  I   2.3  I   0.0  I   0.0  I   0.0  I   0.0  I   4.5  I   9.3  I    2.9
                  I   3.0  I   1.2  I   0.0  I   3.7  I   0.0  I   0.0  I   0.0  I   0.0  I  75.0  I  11.0  I
                  I   2.3  I   0.1  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I   0.3  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             123  I     7  I     0  I     7  I     0  I     0  I     0  I     0  I     0  I     0  I     6  I     19
  CONNECTICUT     I  36.4  I   0.0  I  34.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I  29.5  I    0.2
                  I   0.1  I   0.0  I   1.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.5  I
                  I   0.1  I   0.0  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
           COLUMN     7047      954      575      161       31      107       52       10       16      224     9177
            TOTAL     76.8     10.4      6.3      1.8      0.3      1.2      0.6      0.1      0.2      2.4    100.0
(CONTINUED)
APRIL 1984 LOGAN AWOT EMPLOYEES BY RESIDENCE AND MODE                                        01/18/85        PAGE   26

FILE   CSANTUM  (CREATION DATE = 01/18/75)
* * * * * * * * * * * * * * * * * *   C R O S S T A B U L A T I O N   O F   * * * * * * * * * * * * * * * * * * *
    MELZON    RESIDENCE STUDY ZONE                                  BY  MODE      COMMUTE MODE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  PAGE 15 OF 15

                 MODE
            COUNT  I
          ROW PCT IAUTO DRI AUTO PAS BLUE LIN BLUE LIN MBTA BOO SHUTTLE  TAXI     LIMO     NONMBTA  OTHER       ROW
          COL PCT IVER     S        E SHUTTL E WALK   O ISLAND NO MBTA                     BUS                 TOTAL
          TOT PCT I     1  I     2  I     3  I     4  I     5  I     6  I     7  I     8  I     9  I    10  I
MELZON   ---------I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             124  I    58  I     5  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     7  I     69
  MAINE           I  83.0  I   7.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   9.5  I    0.8
                  I   0.8  I   0.6  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   2.9  I
                  I   0.6  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             125  I   419  I    43  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    462
  NEW HAMPSHIRE   I  90.7  I   9.3  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I    5.0
                  I   5.9  I   4.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  I   4.6  I   0.5  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             126  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    11  I     11
  NEW YORK        I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I 100.0  I    0.1
                  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   5.1  I
                  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.1  I
                 -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
             127  I    50  I    17  I     8  I     0  I     2  I     0  I     0  I     0  I     4  I     0  I     81
```

```
FILE: CTINSZRL OUTPUT  A                VM/SP CONVERSATIONAL MONITOR SYSTEM                    PAGE 023

  RHODE ISLAND     I  62.3  I  21.1  I   9.3  I   0.0  I   2.4  I   0.0  I   0.0  I   0.0  I   4.9  I   0.0  I   0.9
                   I   0.7  I   1.8  I   1.3  I   0.0  I   6.3  I   0.0  I   0.0  I   0.0  I  25.0  I   0.0  I
                   I   0.5  I   0.2  I   0.1  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
               120 I    19  I    23  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I     0  I    42
  REST OF WORLD    I  45.8  I  54.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.5
                   I   0.3  I   2.4  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.2  I   0.2  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
                 0 I   850M I    91M I    20M I     4M I     9M I    11M I    15M I     6M I     2M I    22M I  1030M
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                   I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I   0.0  I
                  -I--------I--------I--------I--------I--------I--------I--------I--------I--------I--------I
            COLUMN    7047      954      575      151       31      107       52       10       16      224     9177
             TOTAL    76.8     10.4      6.3      1.6      0.3      1.2      0.6      0.1      0.2      2.4    100.0
NUMBER OF MISSING OBSERVATIONS =  1030
A  L 1984 LOGAN AWDT EMPLOYEES BY RESIDENCE AND MODE                                     01/18/85        PAGE   27

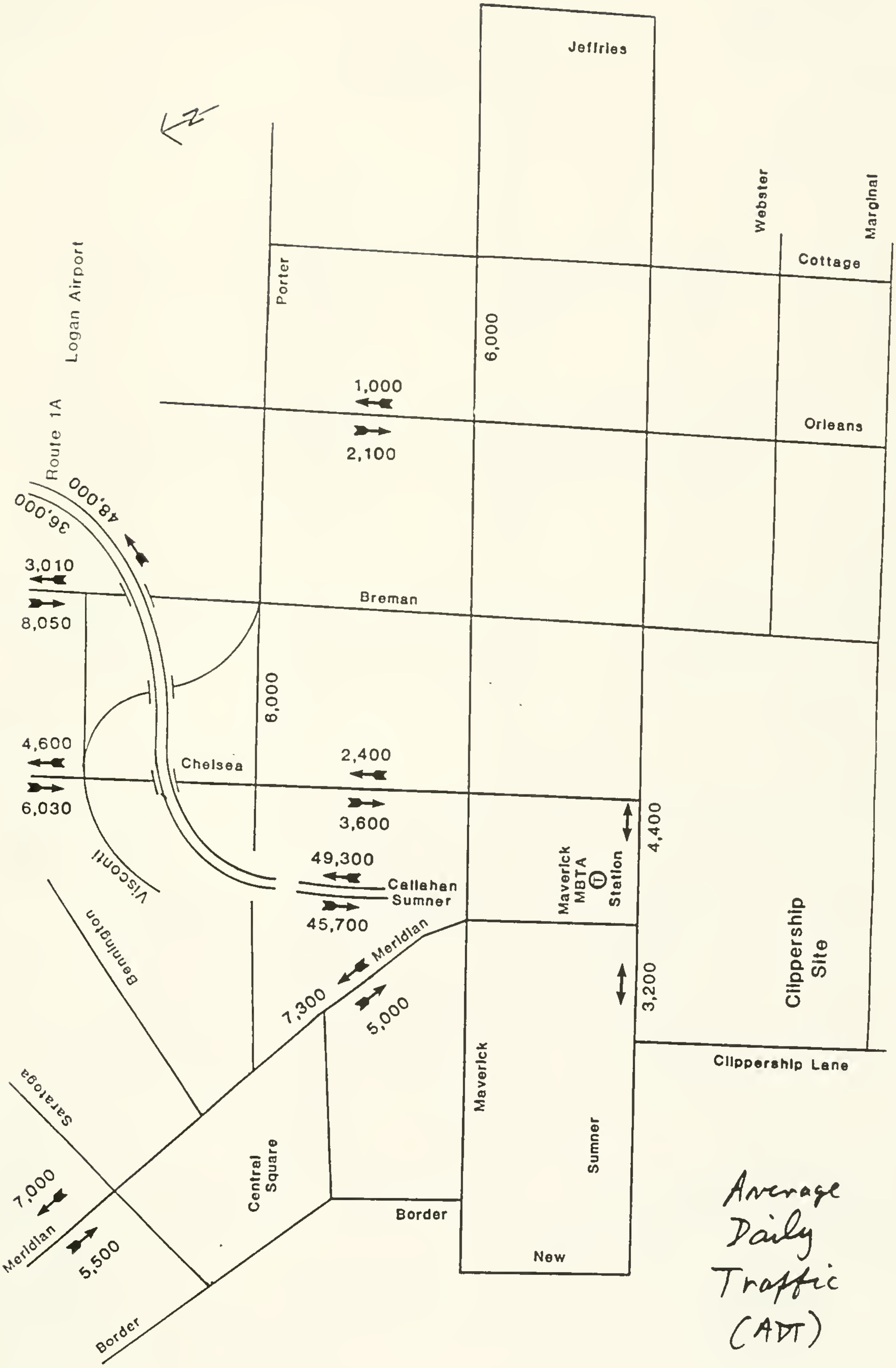
CPU TIME REQUIRED..     3.09 SECONDS


               3 FINISH
        NORMAL END OF JOB.
            9 CONTROL CARDS WERE PROCESSED.
            0 ERRORS WERE DETECTED.
```

B-31

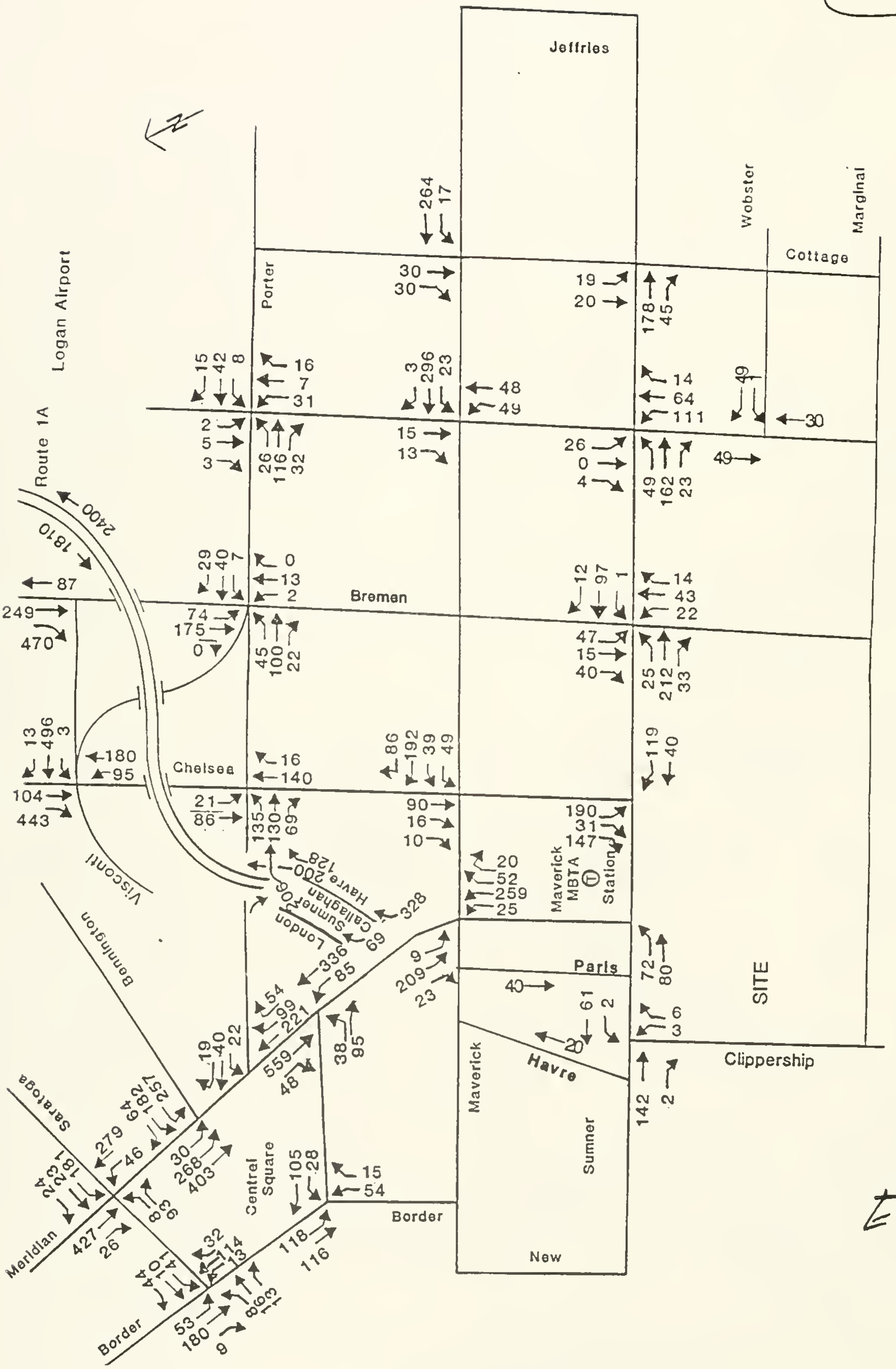
C. Traffic Volume Line Diagrams

C-1



Average Daily Traffic (ADT)

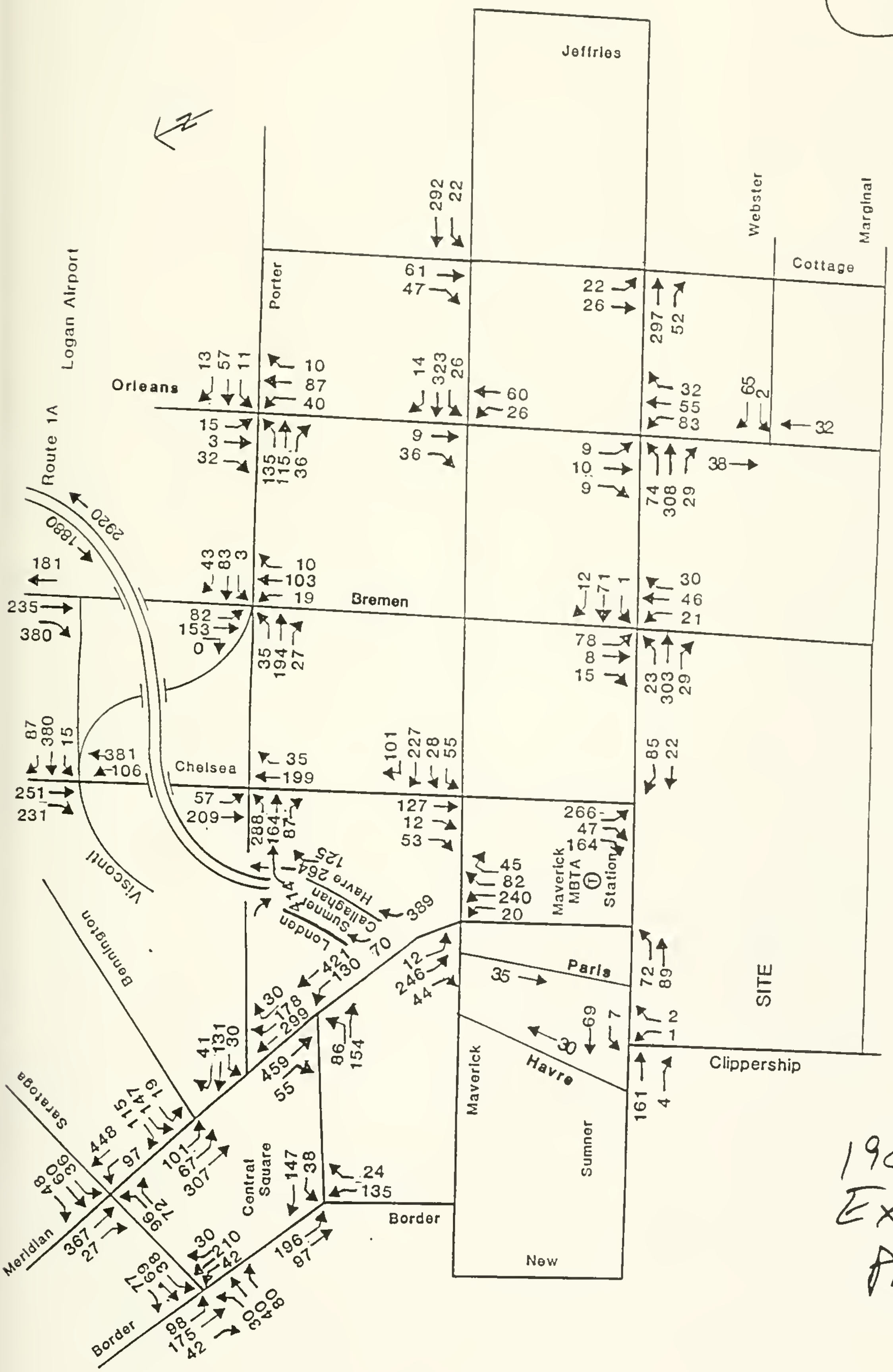
C-2



1986
Existing
AM

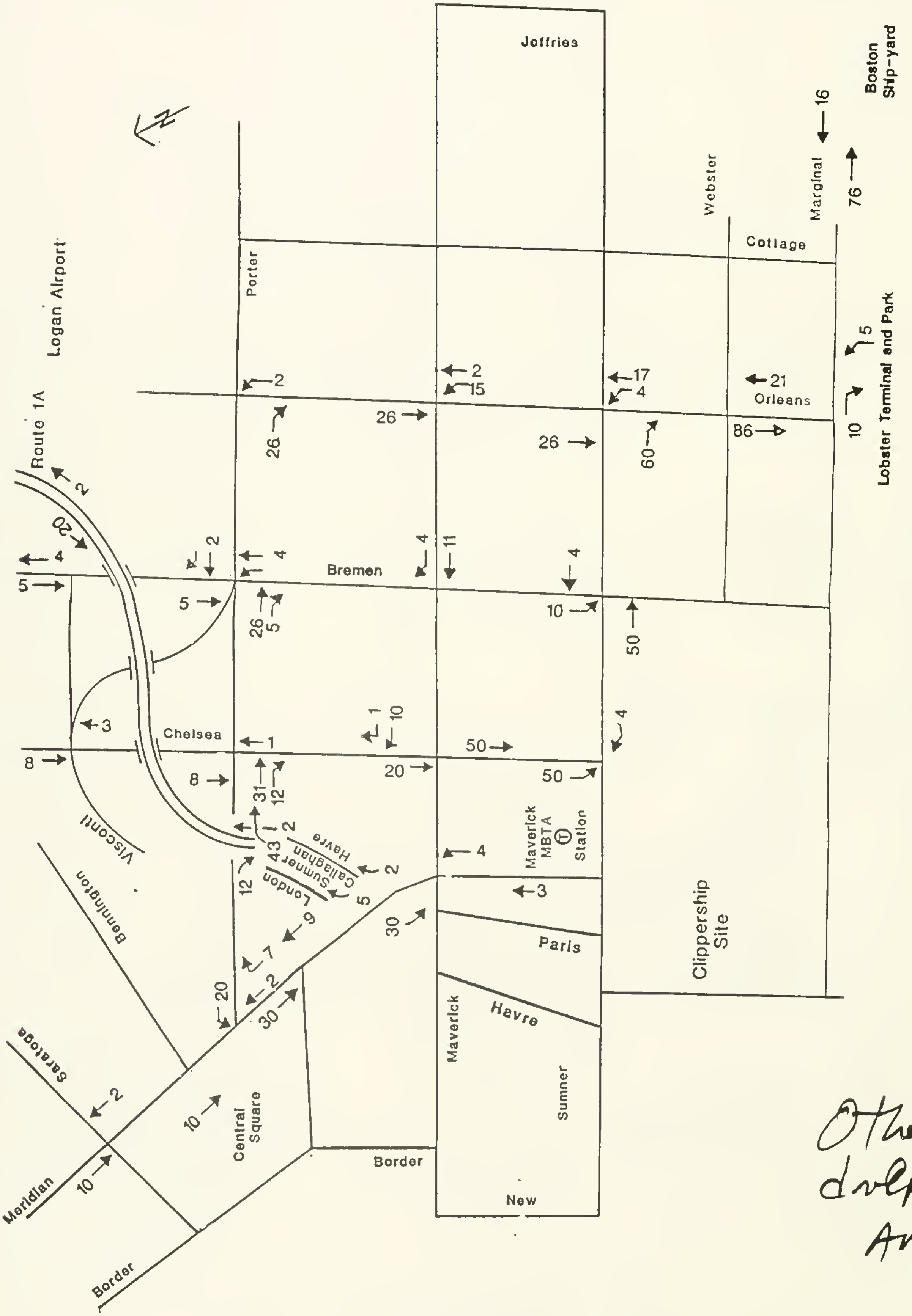
1986
[illegible]
③

C-3



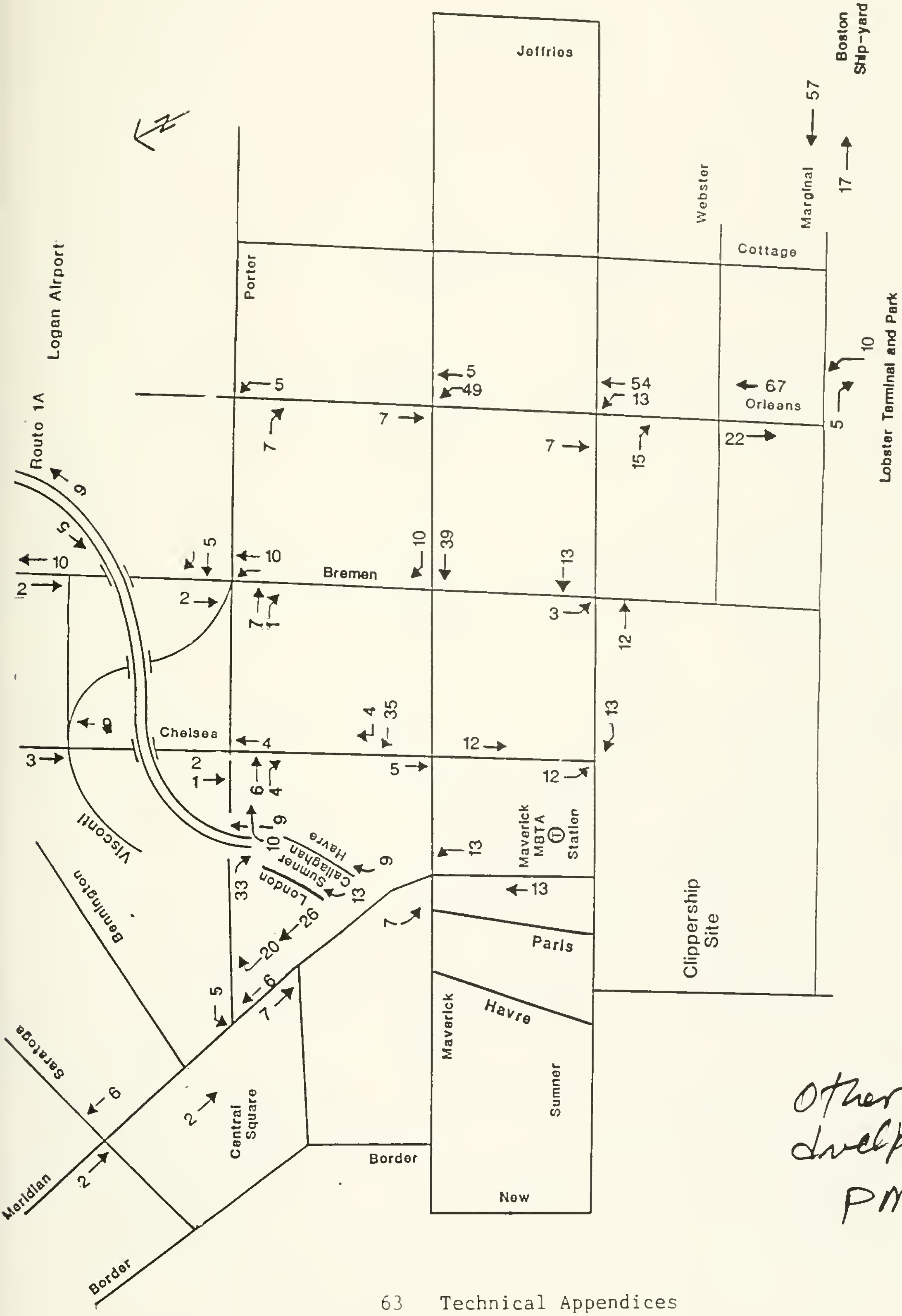
1986
Existing
PM

C-4



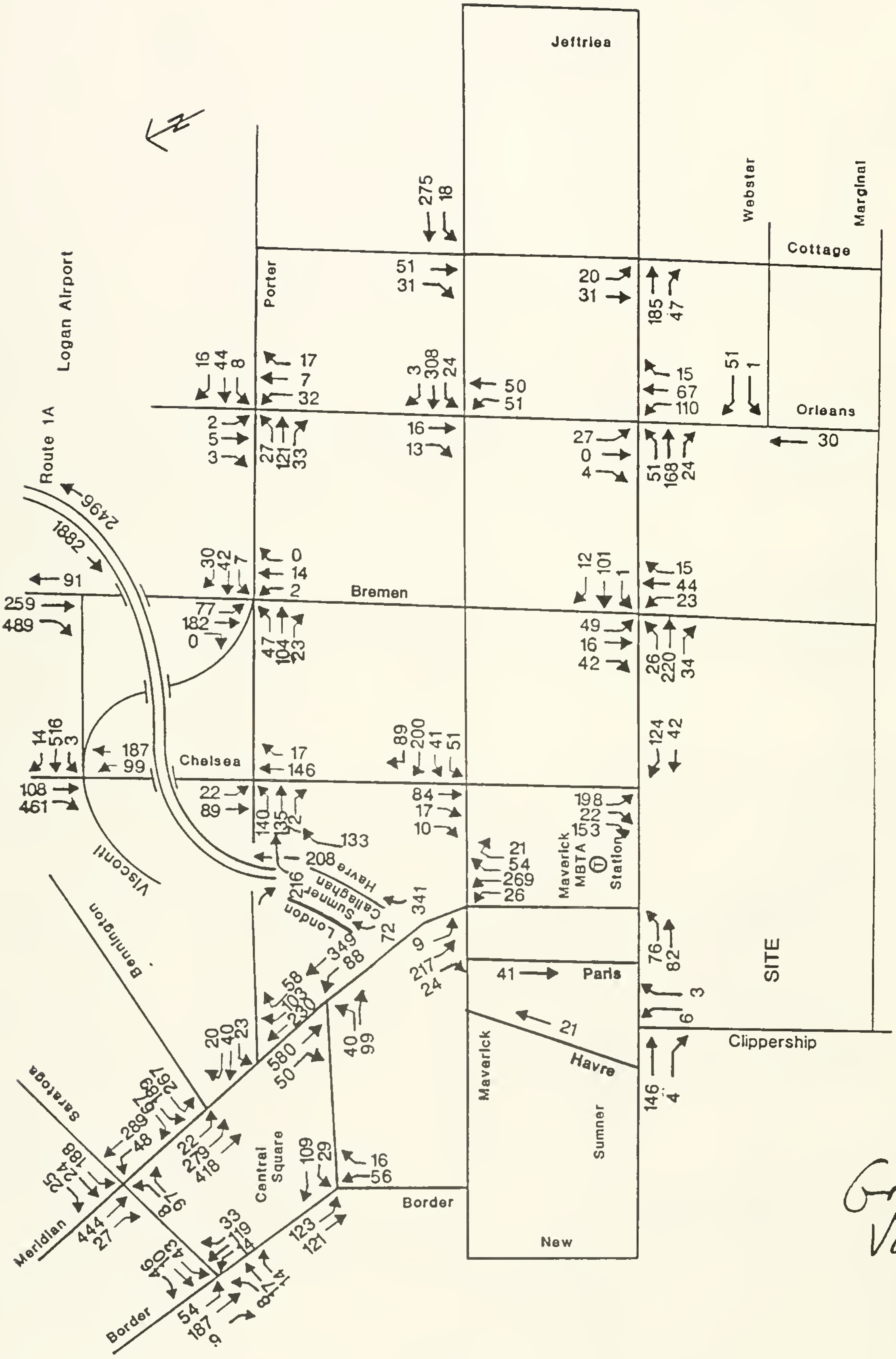
Other dvlpmnt AM

C-5



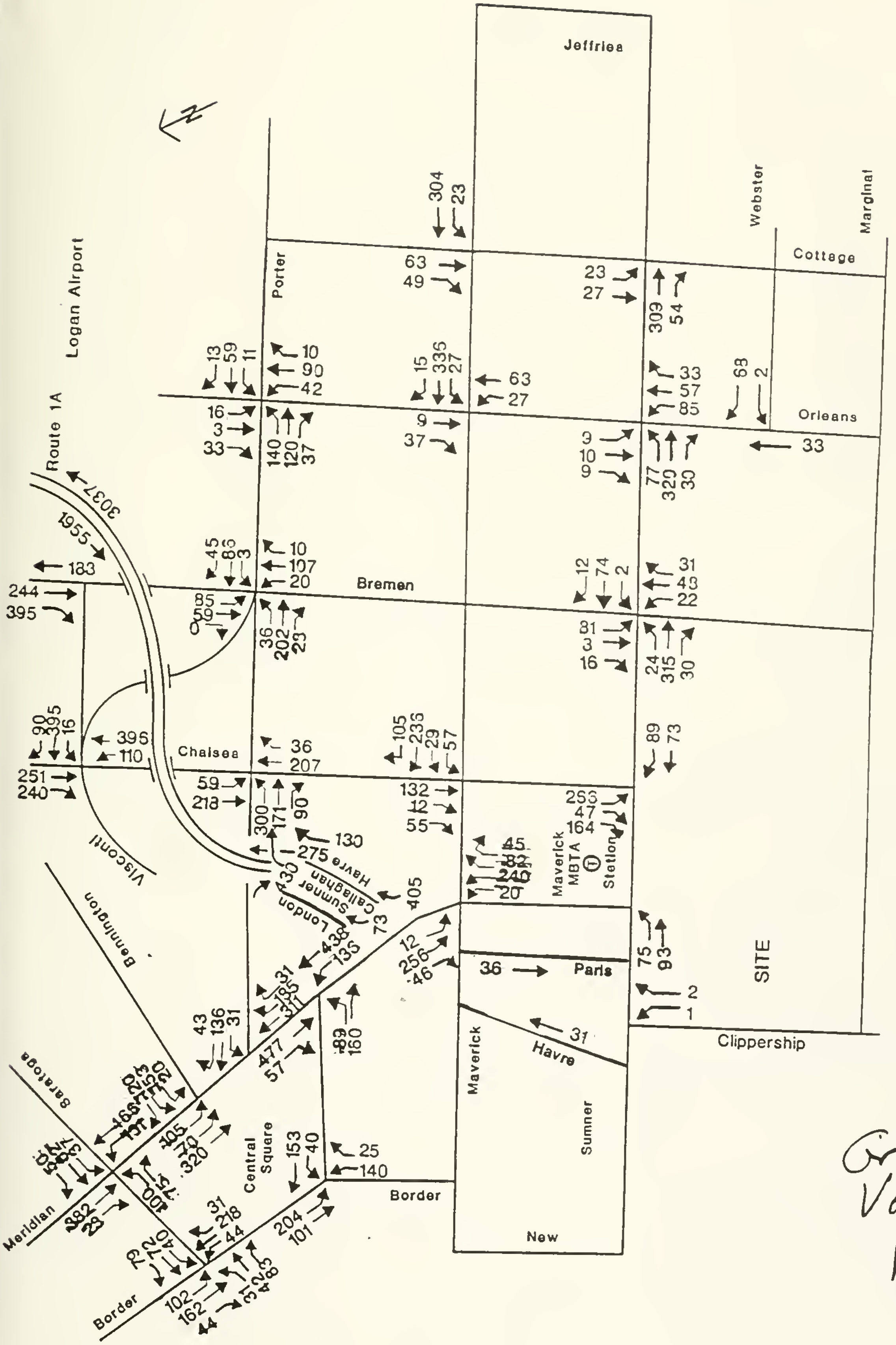
Other develpmnt PM

C-6



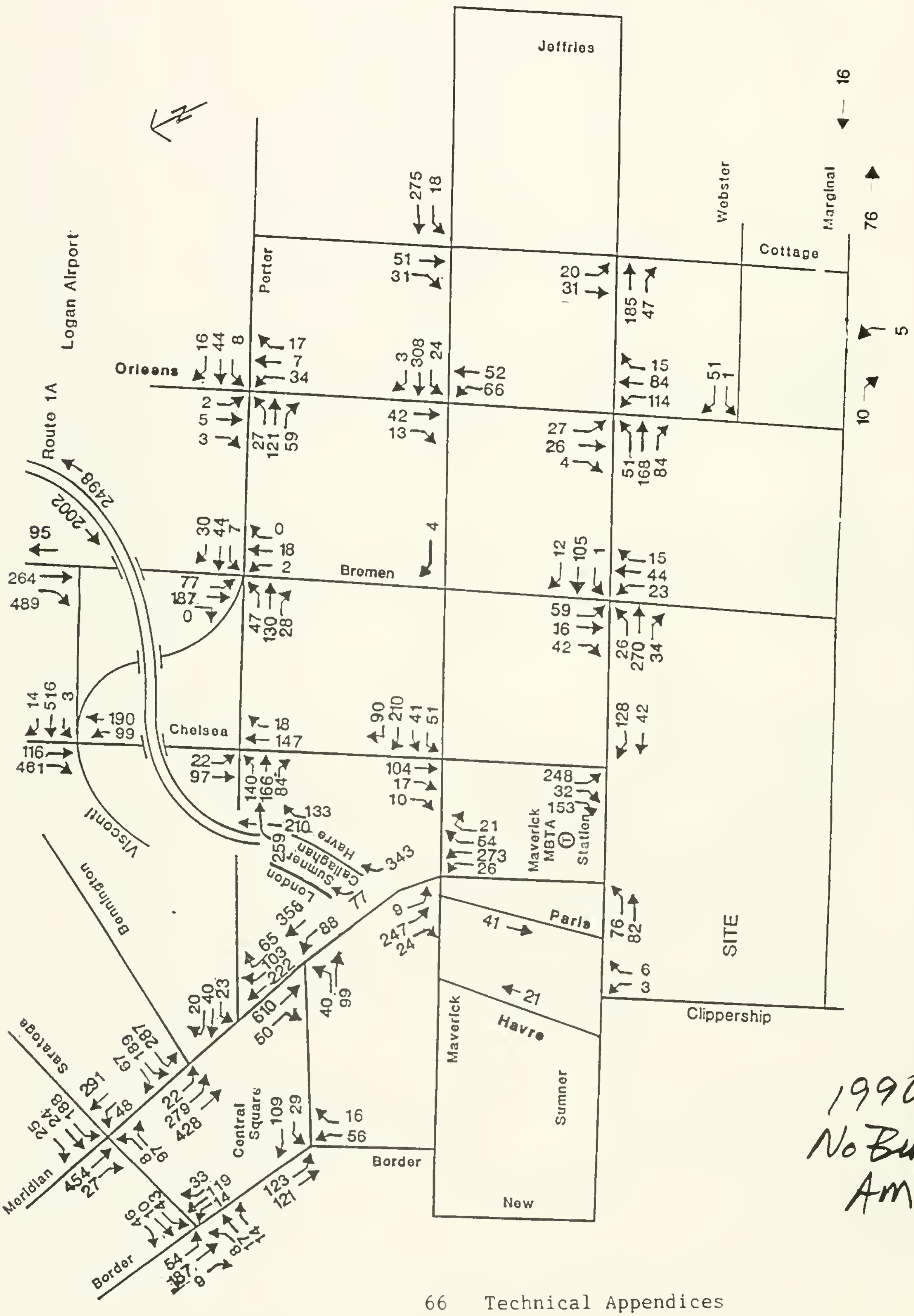
Growth Volumes AM

C-7



Growth
Volumes
PM

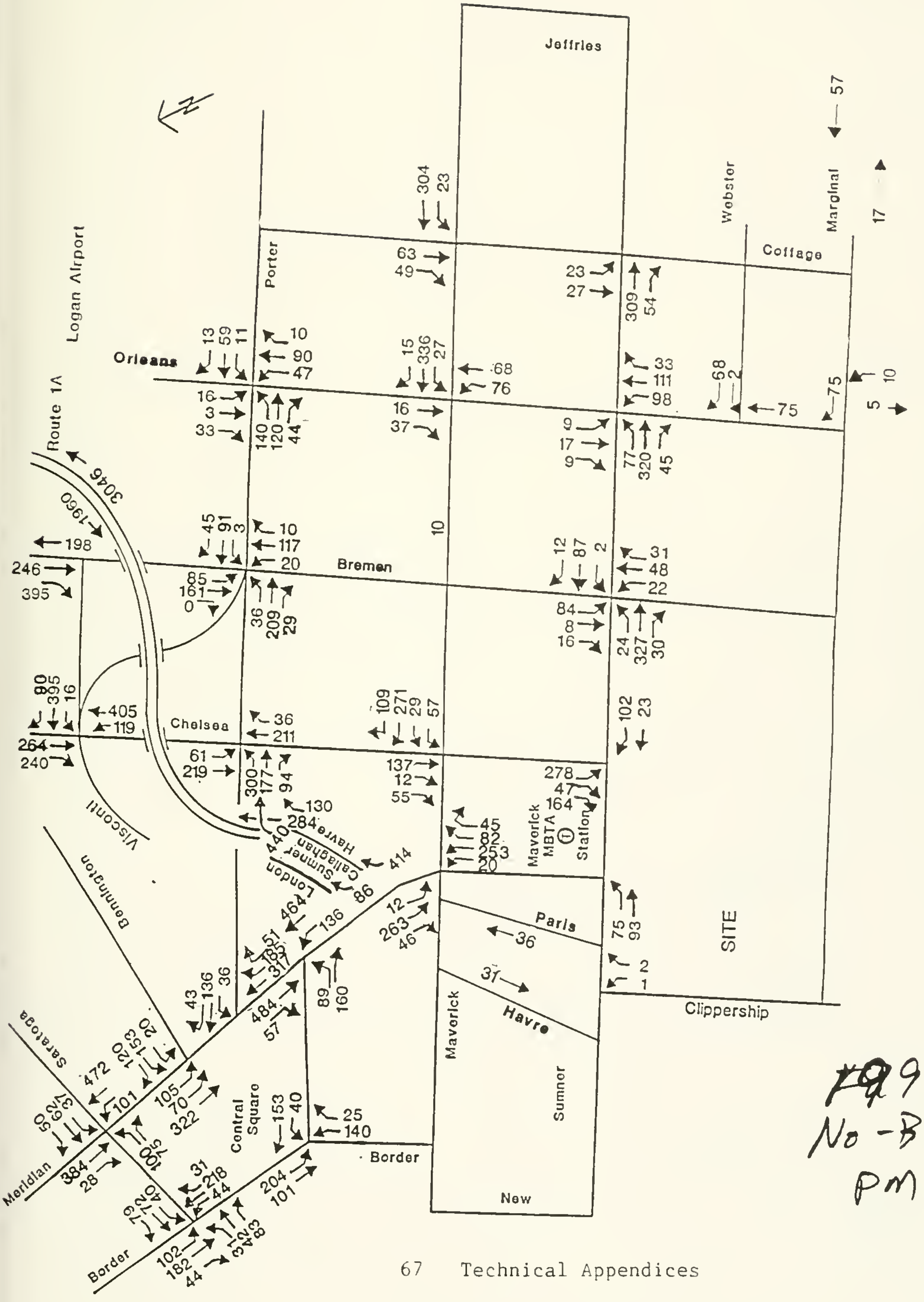
C-8



1990
No Build
AM

C-9

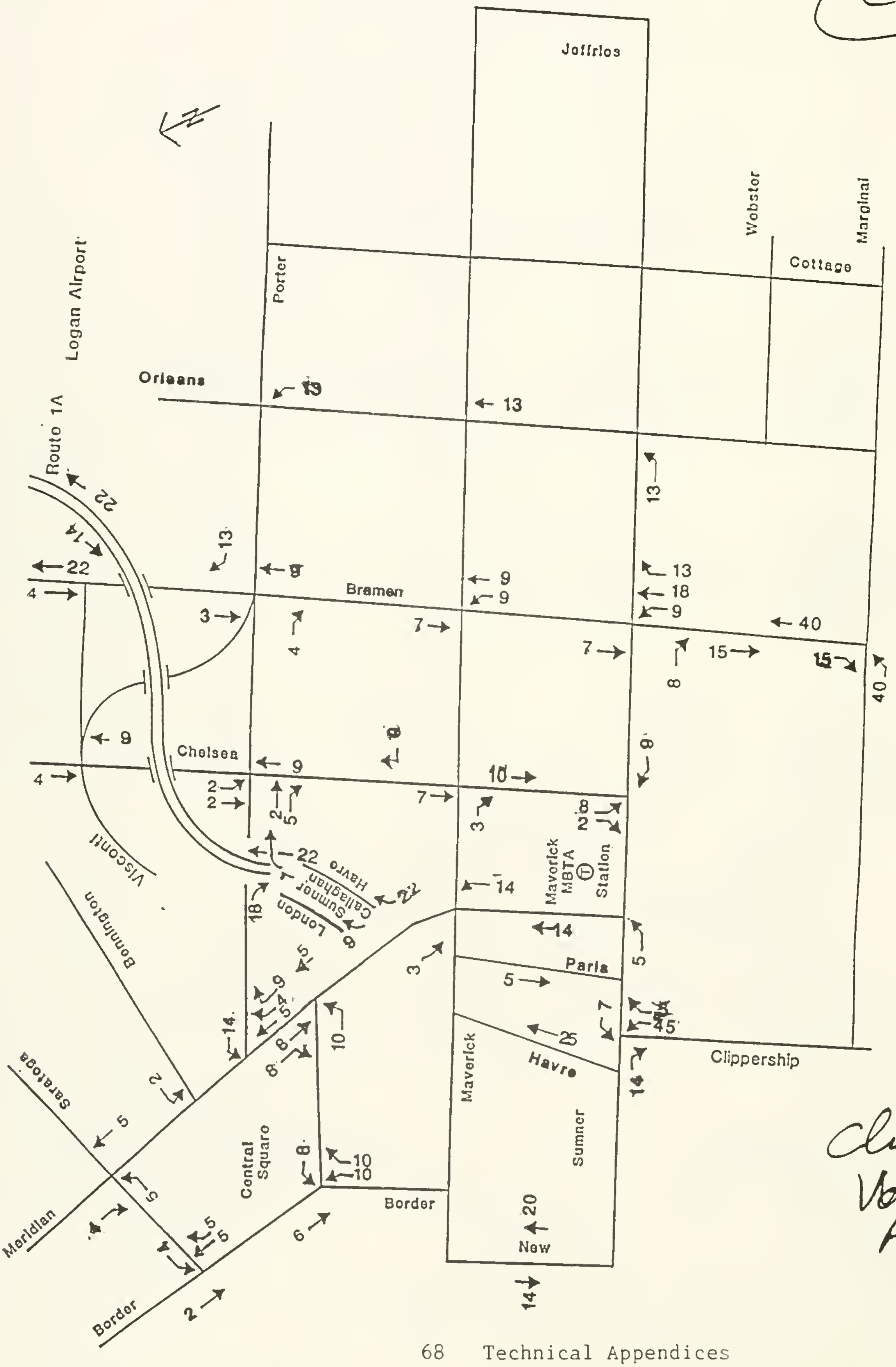
NB
PM
(1?)



1990
No-Build
PM

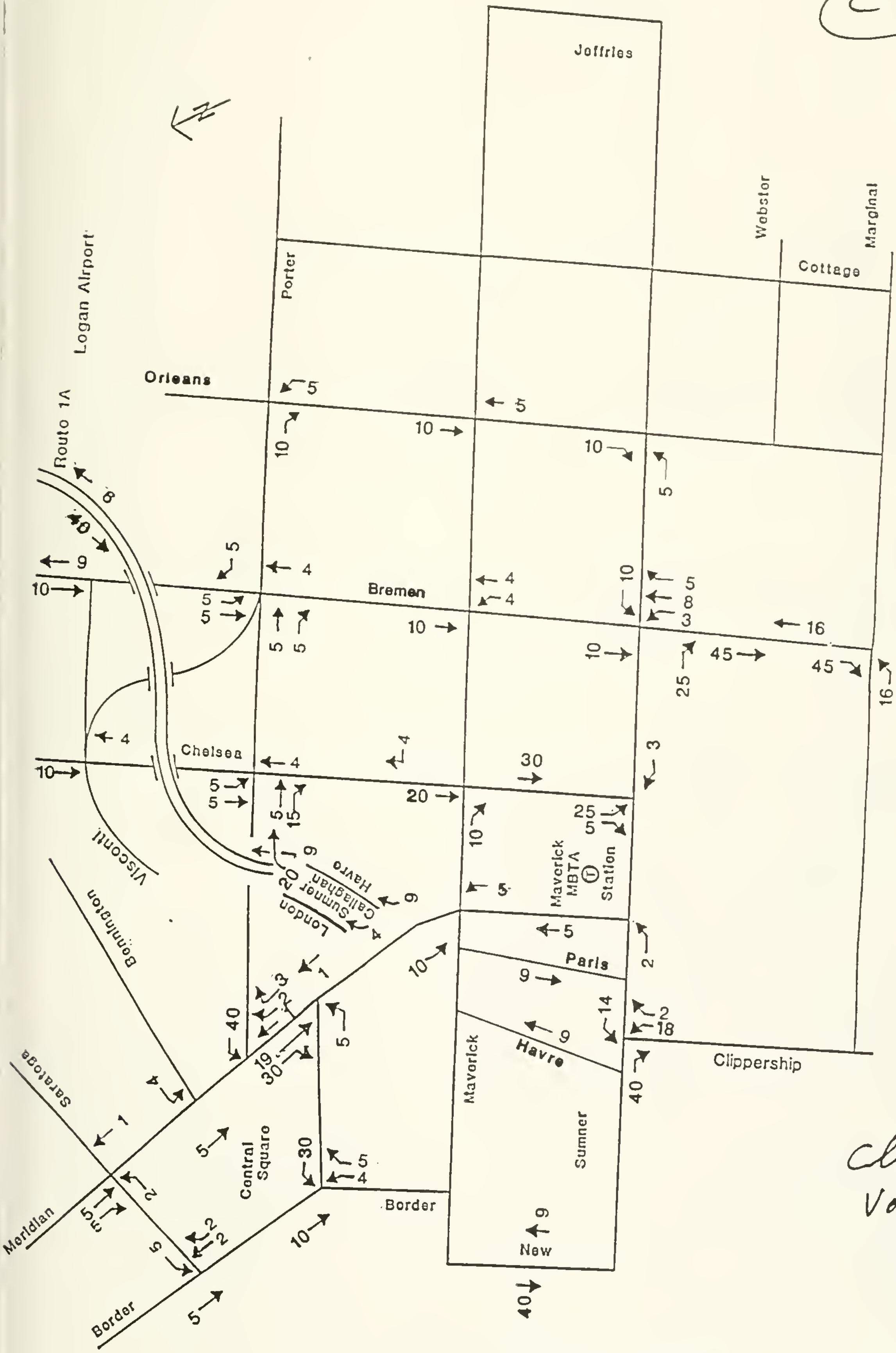
Clipper AM ⑤

C-10



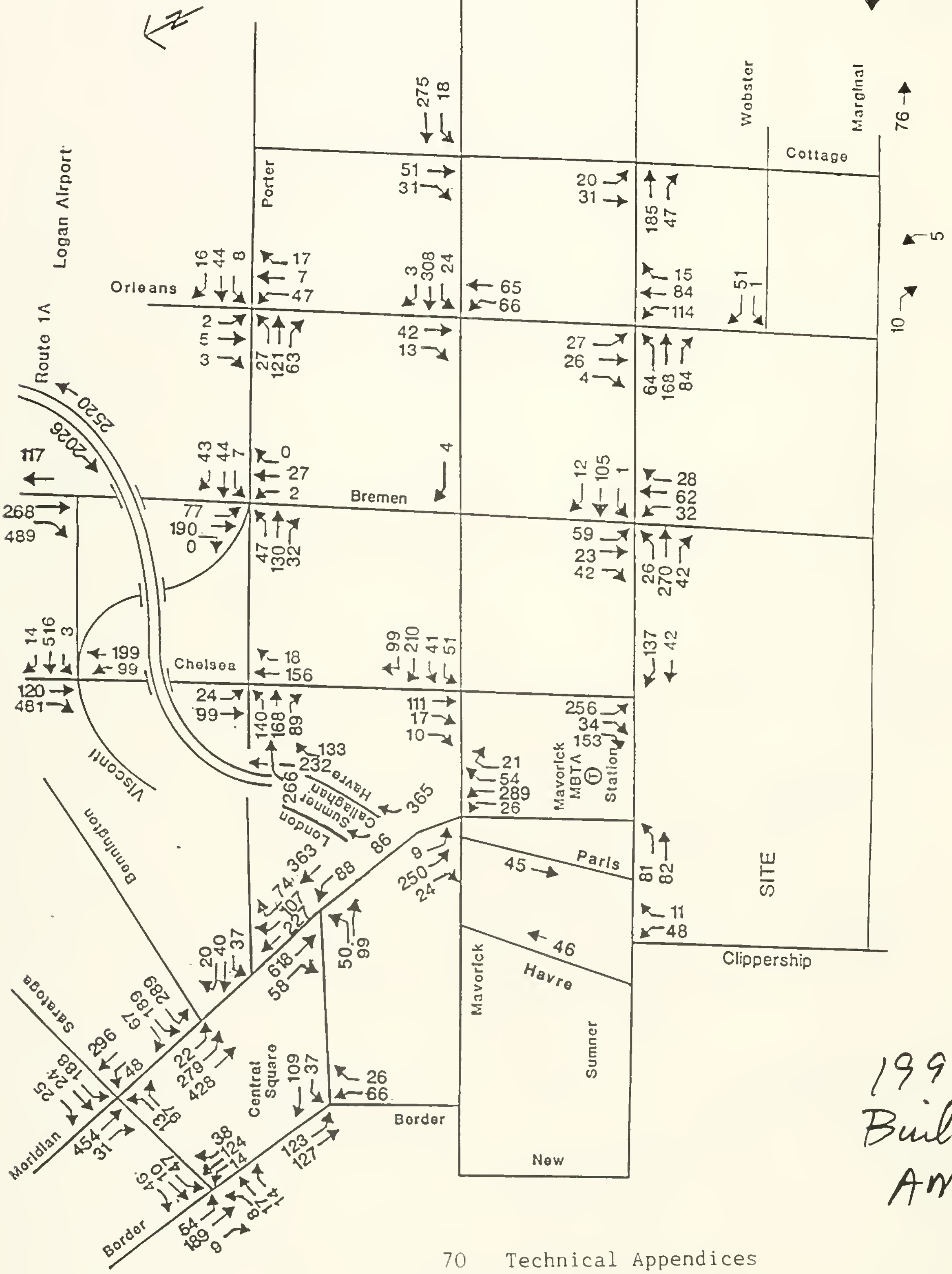
Clippership Volumes AM

C-11



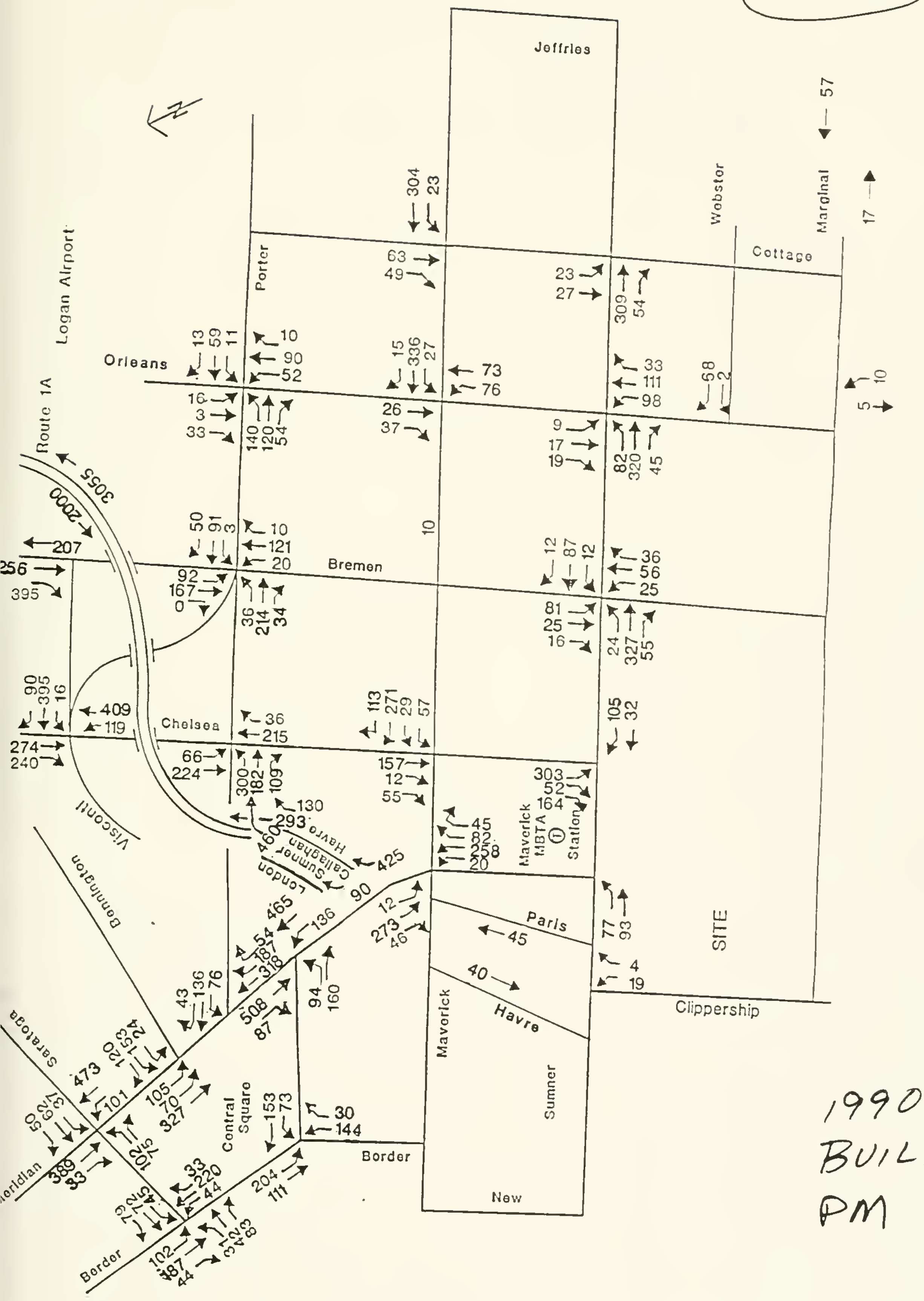
Clippership Volumes PM

C-12



1990
Build
AM

C-13



1990
BUILD
PM

D. Level of Service and Sum of Entering Volumes

D-1

Level of service comparisons

Intersections	Signalized intersections Existing v/c	LOS	No-Build v/c	LOS	-Build- v/c	LOS	-- Numerical change in v/c -- No-Build over Existing	Build over No-Build	Build over Existing
AM PEAK HOUR									
Meridian at Saratoga	0.46	A	0.49	A	0.49	A	0.03	0	0.03
Chelsea at Visconti	0.71	C	0.74	C	0.74	C	0.03	0	0.03
Chelsea at Porter	0.33	A	0.37	A	0.38	A	0.04	0.01	0.05
Porter at Orleans	0.17	A	0.2	A	0.21	A	0.03	0.01	0.04
Sumner at Maverick Sq.	0.39	A	0.52	A	0.46	A	0.13	-0.06	0.07
PM PEAK HOUR									
Meridian at Saratoga	0.44	A	0.47	A	0.48	A	0.03	0.01	0.04
Chelsea at Visconti	0.64	B	0.66	B	0.67	B	0.02	0.01	0.03
Chelsea at Porter	0.55	A	0.58	A	0.61	B	0.03	0.03	0.06
Porter at Orleans	0.31	A	0.33	A	0.34	A	0.02	0.01	0.03
Sumner at Maverick Sq.	0.47	A	0.48	A	0.51	A	0.01	0.03	0.04

where: v/c = volume to capacity ratio
LOS = Level of Service

D-2

evel of service comparisons for most constrained traffic movement

HOUR	Unsignalized intersections						— Numerical change in ARC --		
							No-Build	Build	Build
	Existing		No-Build		-Build-		over	over	over
ions	ARC	LOS	ARC	LOS	ARC	LOS	Existing	No-Build	Existing
AREA									
Clippership	720	A	712	A	647	A	-8	-65	-73
Havre	1175	A	1172	A	1112	A	-3	-60	-63
Paris	731	A	719	A	718	A	-12	-1	-13
UARE AREA									
Saratoga	450	A	435	A	422	A	-15	-13	-28
Central Sq.	548	A	534	A	506	A	-14	-28	-42
at Central Sq.	153	D	128	D	112	D	-25	-16	-41
at Ben/Porter	-113	F	-131	F	-148	F	-18	-17	-35
RTER AREA									
at Marginal	908	A	874	A	874	A	-34	0	-34
Porter	451	A	388	B	376	B	-63	-12	-75
UARE AREA									
at Mav/Chel.	148	D	93	E	69	E	-55	-24	-79
INT AREA									
at Orleans	508	A	439	A	439	A	-69	0	-69
at Cottage	681	A	646	A	646	A	-35	0	-35
Bremen	428	A	363	B	323	B	-65	-40	-105
t Orleans	526	A	438	A	424	A	-88	-14	-102
Cottage	699	A	669	A	669	A	-30	0	-30
at Webster	874	A	838	A	838	A	-36	0	-36

RC = Available Reserve Capacity
OS = Level of Service

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Level of service comparisons for most constrained traffic movement

PM PEAK HOUR	Unsignalized intersections						— Numerical change in ARC --		
Intersections	Existing ARC	LOS	No-Build ARC	LOS	-Build- ARC	LOS	No-Build over Existing	Build over No-Build	Build over Existing
TE ACCESS AREA									
Summer at Clippership	685	A	679	A	619	A	-6	-60	-66
Summer at Havre	696	A	1155	A	1131	A	459	-24	435
Summer at Paris	708	A	691	A	687	A	-17	-4	-21
NTRAL SQUARE AREA									
Border at Saratoga	209	C	193	D	190	D	-16	-3	-19
Border at Central Sq.	382	B	365	B	318	B	-17	-47	-64
Meridian at Central Sq.	80	E	56	E	40	E	-24	-16	-40
Meridian at Ben/Porter	-169	F	-210	F	-236	F	-41	-26	-67
ELSEA PORTER AREA									
Orleans at Marginal	917	A	895	A	895	A	-22	0	-22
Bremen at Porter	257	C	231	C	209	C	-26	-22	-48
VERICK SQUARE AREA									
Meridian at Mav/Chel.	115	D	115	D	62	E	0	-53	-53
FFRIES POINT AREA									
Maverick at Orleans	476	A	399	B	386	B	-77	-13	-90
Maverick at Cottage	614	A	600	A	600	A	-14	0	-14
Summer at Bremen	428	A	294	C	259	C	-134	-35	-169
Summer at Orleans	393	B	308	B	301	B	-85	-7	-92
Summer at Cottage	556	A	543	A	543	A	-13	0	-13
Orleans at Webster	885	A	860	A	860	A	-25	0	-25

where: ARC = Available Reserve Capacity
LOS = Level of Service

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Level of service comparisons for 3-approach, unsignalized intersections

AM PEAK HOUR	Existing		No-Build		-Build-		-- Numerical change in ARC --		
Intersections	ARC	LOS	ARC	LOS	ARC	LOS	No-Build over Existing	Build over No-Build	Build over Existing
BORDER at CENTRAL SQUARE									
Right from Cent. Sq. WB	1209	A	1201	A	1181	A	-8	-20	-28
Left from Cent. Sq. WB	548	A	534	A	506	A	-14	-28	-42
Left from Border SB	1042	A	1033	A	1006	A	-9	-27	-36
MERIDIAN at CENTRAL SQUARE									
Right from Cent. Sq. EB	663	A	618	A	609	A	-45	-9	-54
Left from Cent. Sq. EB	153	D	128	D	112	D	-25	-16	-41
Left from Meridian NB	533	A	492	A	481	A	-41	-11	-52
BREMEN at VISCONTI									
Right from Visconti WB	852	A	830	A	827	A	-22	-3	-25
Left from Visconti WB	419	A	399	B	384	B	-20	-15	-35
Left from Bremen NB	550	A	528	A	526	A	-22	-2	-24
ORLEANS at MARGINAL									
Right from Orleans SB	1390	A	1397	A	1397	A	7	0	7
Left from Orleans SB	908	A	874	A	874	A	-34	0	-34
Left from Marginal EB	1227	A	1239	A	1239	A	12	0	12
ORLEANS at WEBSTER									
Right from Webster WB	1315	A	1326	A	1326	A	11	0	11
Left from Webster WB	874	A	838	A	838	A	-36	0	-36
Left from Orleans SB	1227	A	1239	A	1239	A	12	0	12
SUMMER at CLIPPERSHIP LANE									
Right from Clippership NB	1210	A	1202	A	1189	A	-8	-13	-21
Left from Clippership NB	720	A	712	A	647	A	-8	-65	-73
Left from Summer WB	1073	A	1065	A	1044	A	-8	-21	-29
SUMMER at HAVRE									
Right from Havre SB	na	na	na	na	na	na	na	na	na
Left from Havre SB	na	na	na	na	na	na	na	na	na
Left from Summer EB	1175	A	1172	A	1112	A	-3	-60	-63
SUMMER at PARIS									
Right from Paris SB	1329	A	1327	A	1317	A	-2	-10	-12
Left from Paris SB	731	A	719	A	718	A	-12	-1	-13
Left from Summer EB	1198	A	1196	A	1186	A	-2	-10	-12
MARGINAL at LOBSTER TERMINAL									
Right from Lobster NB	1298	A	1298	A	1369	A	0	71	71
Left from Lobster NB	846	A	867	A	874	A	21	7	28
Right from Marginal WB	1149	A	1149	A	1227	A	0	78	78

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Level of service comparisons for 3-approach, unsignalized intersections

PM PEAK HOUR Intersections	Existing ARC	Existing LOS	No-Build ARC	No-Build LOS	-Build- ARC	-Build- LOS	— Numerical change in ARC — No-Build over Existing	Build over No-Build	Build over Existing
RDER at CENTRAL SQUARE									
Right from Cent. Sq. WB	979	A	967	A	958	A	-12	-9	-21
Left from Cent. Sq. WB	382	B	365	B	318	B	-17	-47	-64
Left from Border SB	840	A	825	A	814	A	-15	-11	-26
RIDIAN at CENTRAL SQUARE									
Right from Cent. Sq. EB	611	A	581	A	548	A	-30	-33	-63
Left from Cent. Sq. EB	80	E	56	E	40	E	-24	-16	-40
Left from Meridian NB	556	A	527	A	486	A	-29	-41	-70
EMEN at VISCONTI									
Right from Visconti WB	836	A	819	A	809	A	-17	-10	-27
Left from Visconti WB	398	B	377	B	367	B	-21	-10	-31
Left from Bremen NB	621	A	602	A	595	A	-19	-7	-26
LEANS at MARGINAL									
Right from Orleans SB	1319	A	1326	A	1326	A	7	0	7
Left from Orleans SB	917	A	895	A	895	A	-22	0	-22
Left from Marginal EB	1224	A	1238	A	1238	A	14	0	14
LEANS at WEBSTER									
Right from Webster WB	1224	A	1172	A	1172	A	-52	0	-52
Left from Webster WB	885	A	860	A	860	A	-25	0	-25
Left from Orleans SB	1224	A	1175	A	1175	A	-49	0	-49
MMER at CLIPPERSHIP LANE									
Right from Clippership NB	1119	A	1112	A	1086	A	-7	-26	-33
Left from Clippership NB	685	A	679	A	619	A	-6	-60	-66
Left from Summer WB	1041	A	1033	A	971	A	-8	-62	-70
MER at HAVRE									
Right from Havre SB	na	na	na	na	na	na	na	na	na
Left from Havre SB	na	na	na	na	na	na	na	na	na
Left from Summer EB	1156	A	1155	A	1131	A	-1	-24	-25
MER at PARIS									
Right from Paris SB	1239	A	1236	A	1233	A	-3	-3	-6
Left from Paris SB	708	A	691	A	687	A	-17	-4	-21
Left from Summer EB	1178	A	1175	A	1174	A	-3	-1	-4
RGINAL at LOBSTER TERMINAL									
Right from Lobster NB	1314	A	1314	A	1285	A	0	-29	-29
Left from Lobster NB	867	A	867	A	884	A	0	17	17
Right from Marginal WB	1238	A	1238	A	1212	A	0	-26	-26

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Level of service comparisons for 4-approach, unsignalized intersections

AM PEAK HOUR
Sheet 1 of 2

							-- Numerical change in ARC --		
Intersections	Existing ARC	LOS	No-Build ARC	LOS	-Build- ARC	LOS	No-Build over Existing	Build over No-Build	Build over Existing
BORDER at SARATOGA									
Left from Parking Lot EB	454	A	440	A	431	A	-14	-9	-23
Thru from Parking Lot EB	573	A	559	A	550	A	-14	-9	-23
Right from Parking Lot EB	1021	A	1012	A	1004	A	-9	-8	-17
Left from Border NB	1016	A	1007	A	1010	A	-9	3	-6
Left from Saratoga WB	450	A	435	A	422	A	-15	-13	-28
Thru from Saratoga WB	590	A	577	A	569	A	-13	-8	-21
Right from Saratoga WB	1054	A	1044	A	1035	A	-10	-9	-19
Left from Border SB	1024	A	1016	A	1003	A	-8	-13	-21
MERIDIAN at BENNINGTON/PORTER									
Left from Meridian NB	-113	F	-131	F	-148	F	-18	-17	-35
Thru from Meridian NB	351	B	337	B	314	B	-14	-23	-37
Right from Meridian NB	687	A	654	A	645	A	-33	-9	-42
Left from Porter WB	568	A	543	A	527	A	-25	-16	-41
Left from Bennington WB	-100	F	-150	F	-167	F	-50	-17	-67
Thru from Bennington WB	153	D	132	D	118	D	-21	-14	-35
Right from Bennington WB	1139	A	1134	A	1134	A	-5	0	-5
Left from Meridian SB	1163	A	1171	A	1171	A	8	0	8
BREMEN at PORTER									
Left from Porter EB	489	A	462	A	438	A	-27	-24	-51
Thru from Porter EB	597	A	542	A	531	A	-55	-11	-66
Right from Porter EB	1023	A	1001	A	994	A	-22	-7	-29
Left from Bremen NB	1045	A	1030	A	1027	A	-15	-3	-18
Left from Porter WB	451	A	388	B	376	B	-63	-12	-75
Thru from Porter WB	663	A	637	A	626	A	-26	-11	-37
Right from Porter WB	1229	A	1221	A	1194	A	-8	-27	-35
Left from Bremen SB	1180	A	1169	A	1156	A	-11	-13	-24
MERIDIAN at MAVERICK/CHELSEA									
Left from Meridian NB	228	C	182	D	171	D	-46	-11	-57
Thru from Meridian NB	148	D	93	E	69	E	-55	-24	-79
Right from Meridian NB	914	A	867	A	864	A	-47	-3	-50
Left from Maverick WB	883	A	836	A	833	A	n.a.	n.a.	n.a.
Left from Chelsea SB	88	E	56	E	41	E	n.a.	n.a.	n.a.
Thru from Chelsea SB	353	B	298	C	285	C	-55	-13	-68
Right from Chelsea SB	948	A	925	A	920	A	-23	-5	-28
Left from Meridian SB	920	A	897	A	887	A	-23	-10	-33

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Level of service comparisons for 4-approach, unsignalized intersections

AM PEAK HOUR
Sheet 2 of 2

	Existing		No-Build		-Build-		-- Numerical change in ARC --		
Intersections	ARC	LOS	ARC	LOS	ARC	LOS	No-Build over Existing	Build over No-Build	Build over Existing
VERICK at ORLEANS									
Left from Orleans SB	529	A	513	A	492	A	n.a.	n.a.	n.a.
Thru from Orleans SB	658	A	616	A	616	A	-42	0	-42
Right from Orleans SB	895	A	883	A	883	A	-12	0	-12
Left from Maverick EB	907	A	894	A	894	A	n.a.	n.a.	n.a.
Left from Orleans NB	508	A	439	A	439	A	-69	0	-69
Thru from Orleans NB	621	A	605	A	590	A	-16	-15	-31
Right from Orleans NB	1278	A	1278	A	1278	A	n.a.	n.a.	n.a.
Left from Maverick WB	1252	A	1251	A	1251	A	-1	0	-1
VERICK at COTTAGE									
Left from Cottage SB	636	A	624	A	624	A	n.a.	n.a.	n.a.
Thru from CottageSB	681	A	646	A	646	A	-35	0	-35
Right from Cottage SB	912	A	899	A	899	A	-13	0	-13
Left from Maverick EB	944	A	932	A	932	A	n.a.	n.a.	n.a.
Left from Cottage NB	554	A	512	A	512	A	n.a.	n.a.	n.a.
Thru from Cottage NB	714	A	702	A	702	A	n.a.	n.a.	n.a.
Right from Cottage NB	1277	A	1277	A	1277	A	n.a.	n.a.	n.a.
Left from Maverick WB	1258	A	1257	A	1257	A	-1	0	-1
MMER at BREMEN									
Left from Bremen NB	473	A	420	A	400	A	-53	-20	-73
Thru from Bremen NB	589	A	531	A	508	A	-58	-23	-81
Right from Bremen NB	969	A	903	A	885	A	-66	-18	-84
Left from Summer WB	965	A	901	A	893	A	-64	-8	-72
Left from Bremen SB	428	A	363	B	323	B	-65	-40	-105
Thru from Bremen SB	610	A	552	A	539	A	-58	-13	-71
Right from Bremen SB	1093	A	1081	A	1081	A	-12	0	-12
Left from Summer EB	1101	A	1090	A	1090	A	-11	0	-11
MMER at ORLEANS									
Left from Orleans NB	556	A	474	A	457	A	-82	-17	-99
Thru from Orleans NB	685	A	672	A	608	A	-17	-64	-81
Right from Orelans NB	1033	A	988	A	988	A	-45	0	-45
Left from Summer WB	1034	A	957	A	957	A	n.a.	n.a.	n.a.
Left from Orleans SB	526	A	438	A	424	A	-88	-14	-102
Thru from Orleans SB	748	A	650	A	632	A	-98	-18	-116
Right from Orelans SB	1274	A	1274	A	1274	A	0	0	0
Left from Summer EB	1223	A	1221	A	1207	A	-2	-14	-16
MMER at COTTAGE									
Left from Cottage NB	665	A	665	A	665	A	n.a.	n.a.	n.a.
Thru from Cottage NB	795	A	795	A	795	A	n.a.	n.a.	n.a.
Right from Cottage NB	1006	A	1006	A	1006	A	n.a.	n.a.	n.a.
Left from Summer WB	979	A	975	A	979	A	n.a.	n.a.	n.a.
Left from Cottage SB	669	A	669	A	669	A	0	0	0
Thru from Cottage SB	738	A	738	A	738	A	0	0	0
Right from Cottage SB	1278	A	1278	A	1278	A	n.a.	n.a.	n.a.
Left from Summer EB	1277	A	1277	A	1277	A	n.a.	n.a.	n.a.

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Level of service comparisons for 4-approach, unsignalized intersections

PM PEAK HOUR
Sheet 1 of 2

							— Numerical change in ARC —		
Intersections	Existing ARC	Existing LOS	No-Build ARC	No-Build LOS	-Build- ARC	-Build- LOS	No-Build over Existing	Build over No-Build	Build over Existing
BORDER at SARATOGA									
Left from Parking Lot EB	209	C	193	D	190	D	-16	-3	-19
Thru from Parking Lot EB	385	B	367	B	362	B	-18	-5	-23
Right from Parking Lot EB	934	A	921	A	916	A	-13	-5	-18
Left from Border NB	951	A	939	A	933	A	-12	-6	-16
Left from Saratoga WB	226	C	209	C	199	D	-17	-10	-27
Thru from Saratoga WB	350	B	331	B	326	B	-19	-5	-24
Right from Saratoga WB	903	A	892	A	888	A	-11	-4	-15
Left from Border SB	663	A	849	A	845	A	-14	-4	-18
MERIDIAN at BENNINGTON/PORTER									
Left from Meridian NB	-169	F	-210	F	-236	F	-41	-26	-67
Thru from Meridian NB	270	C	239	C	193	D	-31	-46	-77
Right from Meridian NB	960	A	925	A	920	A	-35	-5	-40
Left from Porter WB	800	A	776	A	727	A	-24	-49	-73
Left from Bennington WB	131	D	104	D	75	E	-27	-29	-56
Thru from Bennington WB	226	C	197	D	160	D	-29	-37	-66
Right from Bennington WB	948	A	936	A	936	A	-12	0	-12
Left from Meridian SB	939	A	926	A	926	A	-13	0	-13
BREMEN at PORTER									
Left from Porter EB	335	B	312	B	293	C	-23	-19	-42
Thru from Porter EB	379	B	348	B	324	B	-31	-24	-55
Right from Porter EB	1043	A	1032	A	1019	A	-11	-13	-24
Left from Bremen NB	1052	A	1053	A	1034	A	1	-19	-18
Left from Porter WB	257	C	231	C	209	C	-26	-22	-48
Thru from Porter WB	508	A	486	A	463	A	-22	-23	-45
Right from Porter WB	1078	A	1056	A	1052	A	-22	-4	-26
Left from Bremen SB	1022	A	999	A	1000	A	-23	1	-22
MERIDIAN at MAVERICK/CHELSEA									
Left from Meridian NB	140	D	140	D	105	D	0	-35	-35
Thru from Meridian NB	115	D	115	D	62	E	0	-53	-53
Right from Meridian NB	801	A	801	A	781	A	0	-20	-20
Left from Maverick WB	826	A	826	A	802	A	n.a.	n.a.	n.a.
Left from Chelsea SB	88	E	61	E	34	E	n.a.	n.a.	n.a.
Thru from Chelsea SB	353	D	254	C	205	C	-99	-49	-148
Right from Chelsea SB	801	A	858	A	806	A	57	-52	5
Left from Meridian SB	826	A	865	A	814	A	39	-51	-12

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Level of service comparisons for 4-approach, unsignalized intersections

PM PEAK HOUR
Sheet 2 of 2

	Existing		No-Build		-Build-		-- Numerical change in ARC --		
Intersections	ARC	LOS	ARC	LOS	ARC	LOS	No-Build over Existing	Build over No-Build	Build over Existing
VERICK at ORLEANS									
Left from Orleans SB	481	A	458	A	451	A	n.a.	n.a.	n.a.
Thru from Orleans SB	630	A	610	A	599	A	-20	-11	-31
Right from Orleans SB	836	A	821	A	821	A	-15	0	-15
Left from Maverick EB	868	A	854	A	854	A	n.a.	n.a.	n.a.
Left from Orleans NB	476	A	399	B	386	B	-77	-13	-90
Thru from Orleans NB	569	A	546	A	541	A	-23	-5	-28
Right from Orleans NB	1278	A	1278	A	1278	A	n.a.	n.a.	n.a.
Left from Maverick WB	1248	A	1247	A	1247	A	n.a.	n.a.	n.a.
VERICK at COTTAGE									
Left from Cottage SB	604	A	592	A	592	A	n.a.	n.a.	n.a.
Thru from CottageSB	614	A	600	A	600	A	-14	0	-14
Right from Cottage SB	863	A	848	A	848	A	-15	0	-15
Left from Maverick EB	914	A	901	A	901	A	n.a.	n.a.	n.a.
Left from Cottage NB	462	A	447	A	447	A	n.a.	n.a.	n.a.
Thru from Cottage NB	681	A	668	A	668	A	n.a.	n.a.	n.a.
Right from Cottage NB	1277	A	1277	A	1277	A	n.a.	n.a.	n.a.
Left from Maverick WB	1253	A	1252	A	1252	A	-1	0	-1
MMER at BREMEN									
Left from Bremen NB	473	A	434	A	389	B	-39	-45	-84
Thru from Bremen NB	589	A	499	A	470	A	-90	-29	-119
Right from Bremen NB	969	A	830	A	811	A	-139	-19	-158
Left from Summer WB	965	A	847	A	812	A	-118	-35	-153
Left from Bremen SB	428	C	294	C	259	C	-134	-35	-169
Thru from Bremen SB	610	A	536	A	488	A	-74	-48	-122
Right from Bremen SB	1093	A	1132	A	1132	A	39	0	39
Left from Summer EB	1101	A	1116	A	1116	A	15	0	15
MMER at ORLEANS									
Left from Orleans NB	405	A	363	B	345	B	-42	-18	-60
Thru from Orleans NB	526	A	449	A	439	A	-77	-10	-87
Right from Orleans NB	848	A	827	A	827	A	-21	0	-21
Left from Summer WB	868	A	840	A	840	A	n.a.	n.a.	n.a.
Left from Orleans SB	393	B	308	B	301	B	-85	-7	-92
Thru from Orleans SB	565	A	535	A	525	A	-30	-10	-40
Right from Orelans SB	1268	A	1268	A	1257	A	0	-11	-11
Left from Summer EB	1196	A	1196	A	1187	A	0	-9	-9
MMER at COTTAGE									
Left from Cottage NB	565	A	552	A	552	A	n.a.	n.a.	n.a.
Thru from Cottage NB	679	A	667	A	667	A	n.a.	n.a.	n.a.
Right from Cottage NB	882	A	869	A	869	A	n.a.	n.a.	n.a.
Left from Summer WB	856	A	842	A	842	A	n.a.	n.a.	n.a.
Left from Cottage SB	556	A	543	A	543	A	-13	0	-13
Thru from Cottage SB	628	A	614	A	614	A	-14	0	-14
Right from Cottage SB	1278	A	1278	A	1278	A	n.a.	n.a.	n.a.
Left from Summer EB	1277	A	1277	A	1277	A	n.a.	n.a.	n.a.

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Table

Total of Entering Traffic Volumes at Intersections

AM Peak Hour

Intersections	Sum of Entering Volumes			----Numerical Increase----- With 4% GROWTH over 4 years		
	1986 Existing	1990 No-Build	1990 Build	No-Build less '86 Existing	Build less '86 Existing	Build less '90 No-Build
SITE ENTRANCE AREA						
1 Summer/Clip Ln	216	224	291	8	75	67
2 Summer/Havre	210	218	277	8	67	59
3 Summer/Paris	210	220	221	10	11	1
4 Marginal/Bremen	129	133	188	4	59	55
MAVERICK SQUARE						
5 Meridian/Maverick	854	932	951	78	97	19
6 Meridian/Summer	489	513	529	24	40	16
7 Chelsea/Maverick	772	854	873	82	101	19
8 Chelsea/Summer	607	685	704	78	97	19
CENTRAL SQUARE						
9 Border/Saratoga	533	554	570	21	37	16
10 Border/Cent Sq.	436	454	488	18	52	34
11 Meridian/Saratoga	1107	1162	1176	55	69	14
12 Meridian/Prtr/Ben	1659	1680	1779	21	120	99
13 Meridian/Cent Sq.	1161	1245	1276	84	115	31
CHELSEA/PORTER AREA						
14 Chelsea/Visconti	1334	1399	1412	65	78	13
15 Chelsea/Porter	597	674	694	77	97	20
16 Bremen/Visconti	806	848	874	42	68	26
17 Bremen/Porter	507	570	599	63	92	29
JEFFRIES POINT AREA						
18 Porter/Orleans	303	343	360	40	57	17
19 Maverick/Orleans	447	508	521	61	74	13
20 Maverick/Cottage	341	375	375	34	34	0
21 Sumnmr/Bremen	561	647	702	86	141	55
22 Summer/Orleans	453	573	586	120	133	13
23 Summer/Cottage	262	283	283	21	21	0
24 Webster/Orleans	129	159	159	30	30	0

D-11

Table

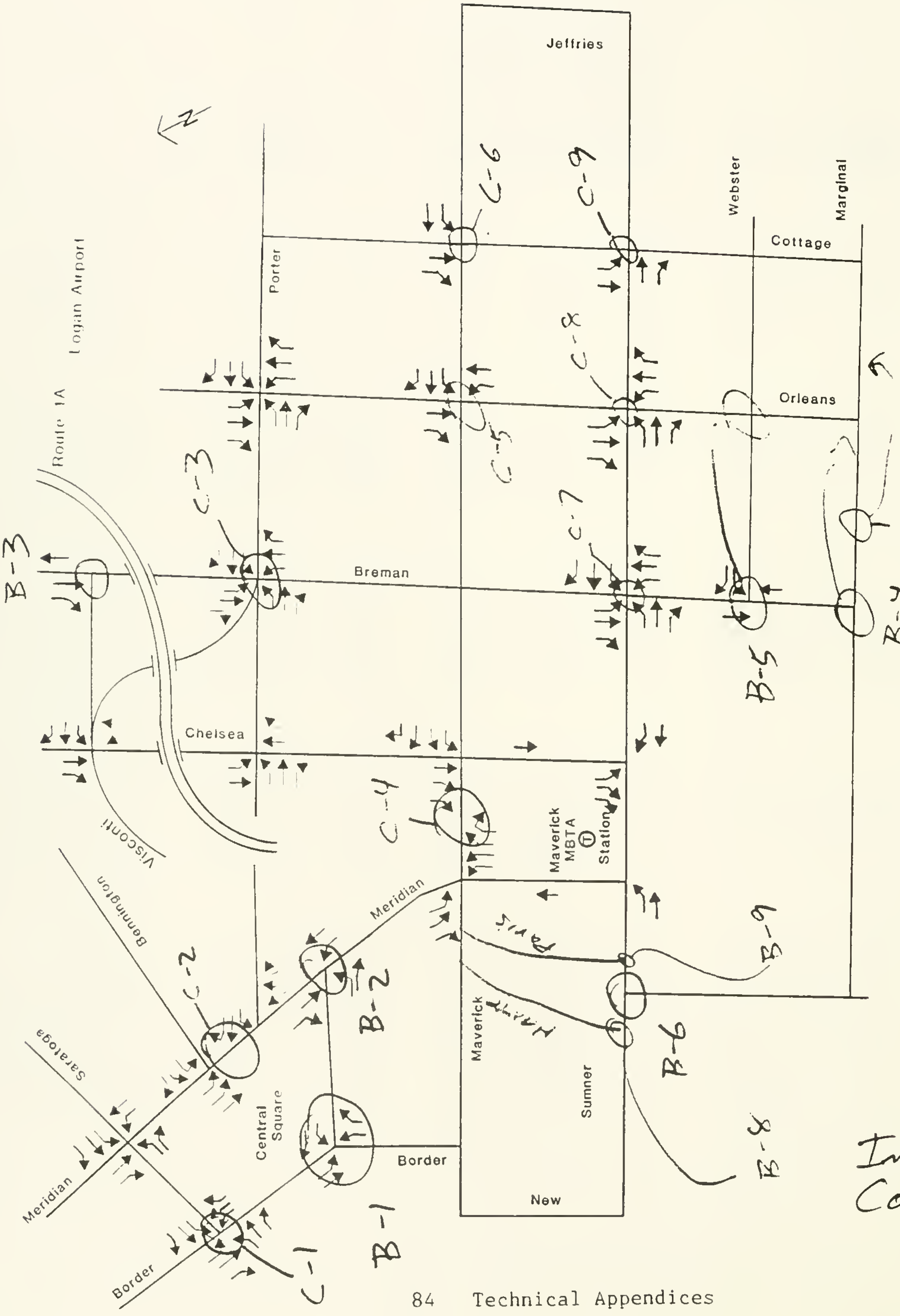
Total of Entering Traffic Volumes at Intersections

PM Peak Hour

tersections	Sum of Entering Volumes 1986 Existing	 1990 No-Build	 1990 Build	----Numerical Increase----- With 4% GROWTH over 4 years No-Build less '86 Existing	 Build less '86 Existing	 Build less '90 No-Build
SITE ENTRANCE AREA						
1 Summer/Clip Ln	244	250	321	6	77	71
2 Summer/Havre	242	250	308	8	66	58
3 Summer/Paris	230	245	256	15	26	11
4 Marginal/Bremen	70	70	132	0	62	62
MAVERICK SQUARE						
5 Meridian/Maverick	1009	1088	1103	79	94	15
6 Meridian/Summer	479	504	523	25	44	19
7 Chelsea/Maverick	988	1072	1152	84	164	80
8 Chelsea/Summer	673	707	749	34	76	42
CENTRAL SQUARE						
9 Border/Saratoga	931	968	982	37	51	14
0 Border/Cent Sq.	637	663	715	26	76	52
1 Meridian/Saratoga	1251	1309	1322	58	71	13
2 Meridian/Prtr/Ben	1465	1558	1613	93	148	55
3 Meridian/Cent Sq.	1305	1390	1450	85	145	60
CHELSEA/PORTER AREA						
4 Chelsea/Visconti	1451	1529	1543	78	92	14
5 Chelsea/Porter	1039	1098	1132	59	93	34
6 Bremen/Visconti	796	839	858	43	62	19
7 Bremen/Porter	752	806	838	54	86	32
JEFFRIES POINT AREA						
8 Porter/Orleans	554	586	601	32	47	15
9 Maverick/Orleans	494	575	590	81	96	15
0 Maverick/Cottage	422	439	439	17	17	0
1 Summer/Bremen	637	691	756	54	119	65
2 Summer/Orleans	609	719	734	110	125	15
3 Summer/Cottage	397	413	413	16	16	0
4 Webster/Orleans	72	89	89	17	17	0

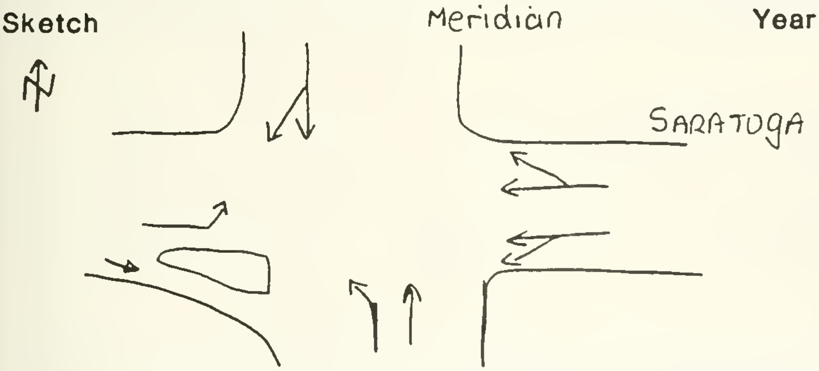
D-12-a

Intersection Keys



Intersection Codings

Sketch



Year:

Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

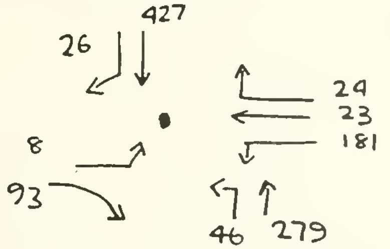
CLV		Signal Phases		
LOS	v/c	[✓ 2]	3	4
E	1.0	1800	1720	1650

c = (CLV)(PHF/1.0)

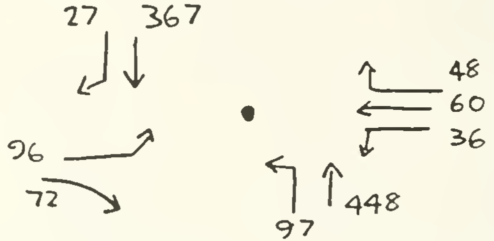
c = (1800)(0.95/1) = 1700

Volumes

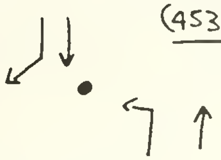
AM Peak Hour



PM Peak Hour

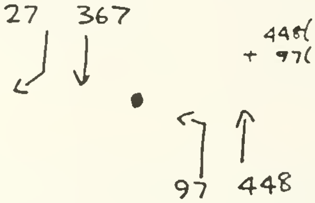


Phase 1



$\frac{(453)(1.1)}{1} = 498$

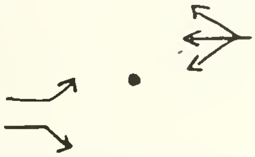
498



448(1.05)
+ 97(1.25)
= 572

572

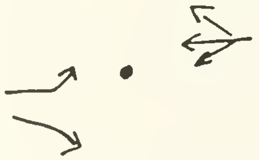
Phase 2



$\frac{228(1.25)}{1}$

= 285

285



144 (1.25)
= 180

180

Phase 3

Phase 4

All	ΣCM		LOS	ΣCM		LOS
	783	v/c = $\frac{783}{1700}$ = 0.46	A	752	v/c = $\frac{752}{1700}$ = 0.44.	A

Clippership Wharf.
East Boston

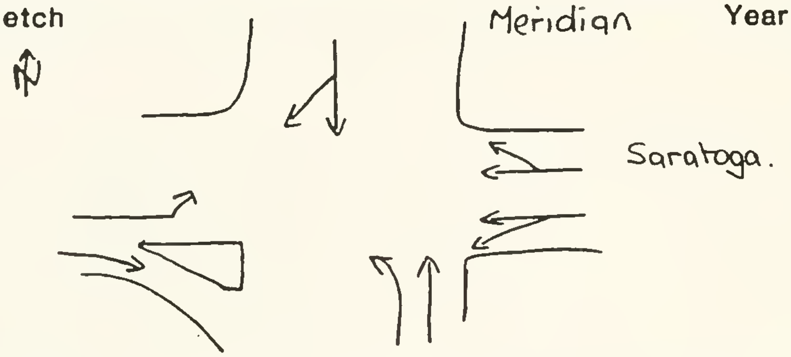
Critical Lane Movement Analysis

Meridian @ Saratoga. Existing 1986

Figure

Sketch

Year:



Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

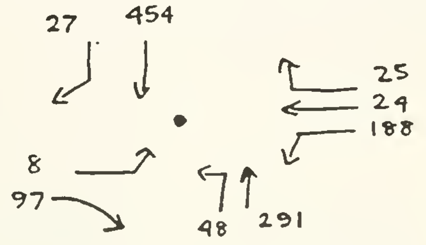
CLV		Signal Phases		
LOS	v/c	[✓ 2]	3	4
E	1.0	1800	1720	1650

c = (CLV)(PHF/1.0)

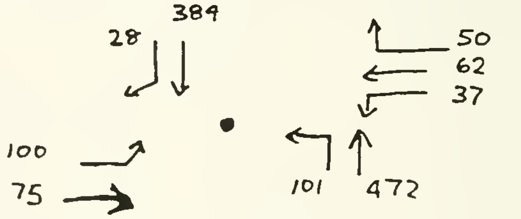
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

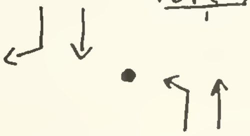


PM Peak Hour



Phase 1

AM:



481(1.1) = 530

291(1.05) + 48(1.25) = 366

530

PM:

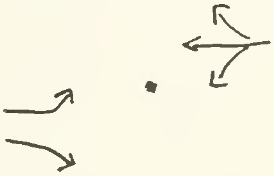
(412)(1.1) = 454

472(1.05) + 97(1.25) =

617

Phase 2

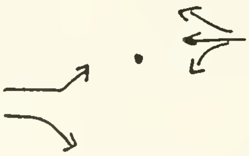
AM:



237(1.25) =

297

PM:



149(1.25) = 186

186

Phase 3

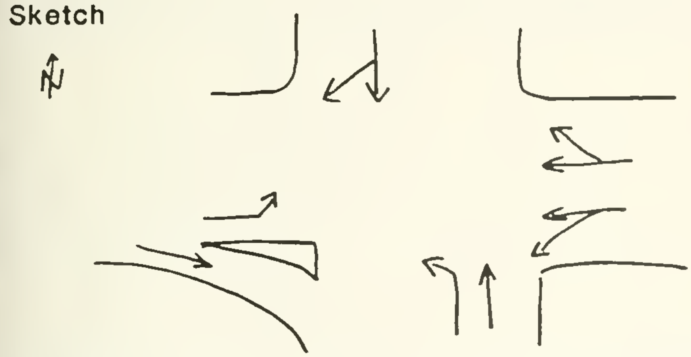
Phase 4

All	ΣCM		LOS	ΣCM		LOS
All	827	v/c = 827/1700 = 0.49.	A	803	v/c = 803/1700 = 0.47	A

Clippership Wharf. East Boston.	**Critical Lane Movement Analysis** Meridian @ Saratoga 1990 No-Build	Figure

D-14

Sketch



Year:

Lane Adjustment Factors (AF)

ST: 1.00/1, 1.05/2, 1.10/3

RT: 1.25/0, 1.10/1

LT: 1.25/0, 1.10/1, 1.35/2

T: 1% for each 1% trucks

v = (vol)(AF)(100-T)(1/L)

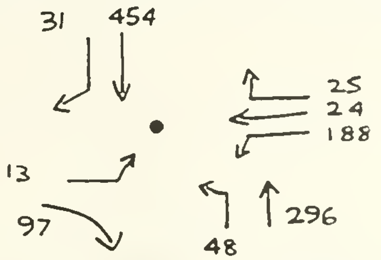
CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

c = (CLV)(PHF/1.0)

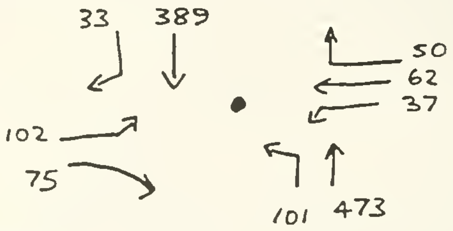
c = (1800)(0.95/1) = 1700

Volumes

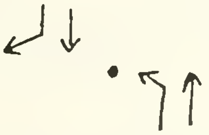
AM Peak Hour



PM Peak Hour

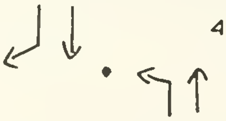


Phase 1



$\frac{485(1.1)}{1} = 534$

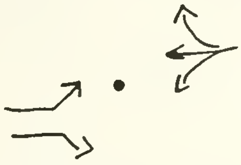
534



473(1.05)
+101(1.25)
=

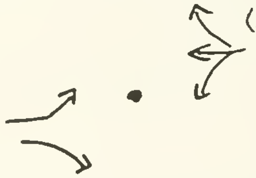
623

Phase 2



237(1.25)

296



(149)(1.25)
= 186

186

Phase 3

Phase 4

All

ΣCM 830 v/c = $\frac{830}{1700}$ = 0.49 LOS A

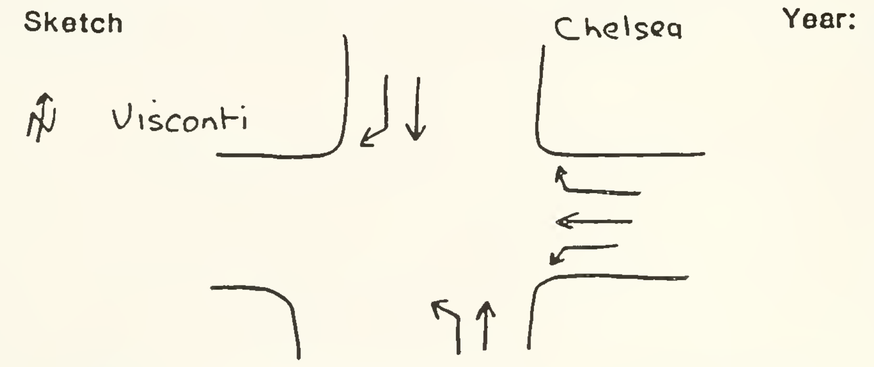
ΣCM 809 v/c = $\frac{809}{1700}$ = 0.48 LOS A

Clippership Wharf.
East Boston

Critical Lane Movement Analysis

Meridian @ Saratoga. 1990 Build.

Figure



Year:

Lane Adjustment Factors (AF)

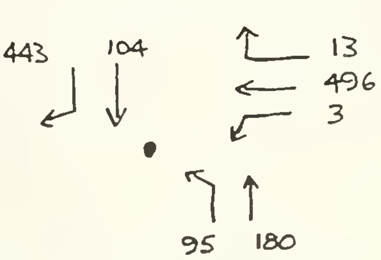
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

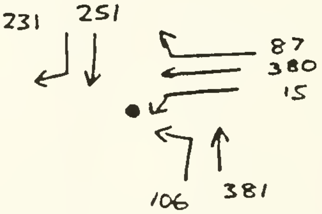
c = (CLV)(PHF/1.0)
c = (1800)(0.95/1) = 1700

Volumes

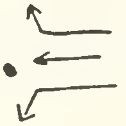
AM Peak Hour



PM Peak Hour

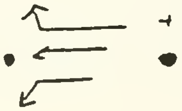


Phase 1



$496(1.05)/1$
$+\ 3(1.25)/1$
$+\ 13(1.25)/1$

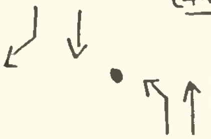
541



$380(1.05)/1$
$+\ (102)(1.25)/1$

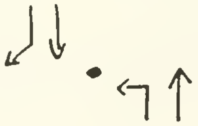
527

Phase 2



$(443)(1.25)+(104)(1.05)$
$= 663$

663



$(231)(1.25) + (251)(1.05)$

553

Phase 3

Phase 4

All	ΣCM		LOS	ΣCM		LOS
	1204	$v/c = \frac{1204}{1700} = 0.71$	C	1080	$v/c = \frac{1080}{1700} = 0.64$	B

Clippership Wharf.
East Boston.

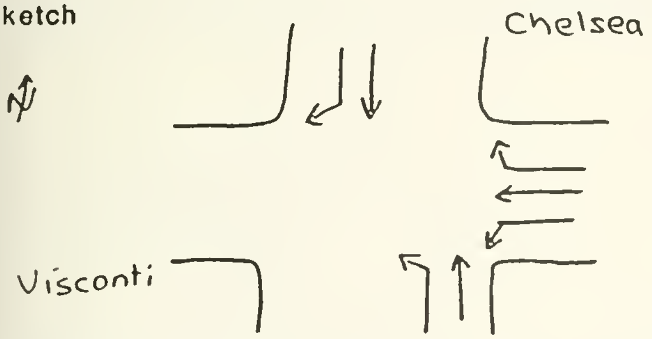
Critical Lane Movement Analysis

Chelsea @ Visconti Existing 1986

Figure

(D-16)

Sketch



Year:

Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

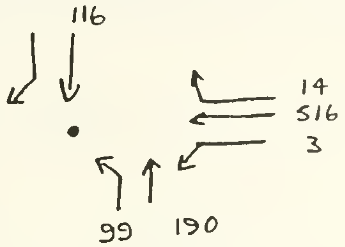
CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

c = (CLV)(PHF/1.0)

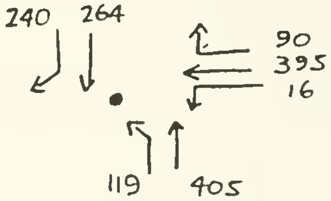
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

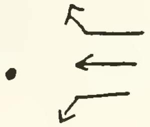


PM Peak Hour



Phase 1

AM:



(516)(1.05)/1 + (17)(1.25)/1

563

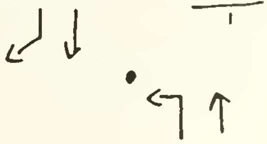
PM:

$\frac{395(1.05)}{1} + \frac{(1.25)(106)}{1}$

547

Phase 2

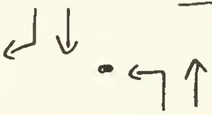
AM:



$\frac{461(1.25)}{1} + \frac{116(1.05)}{1}$

698

PM:



$\frac{240(1.25) + 264(1.05)}{1}$

577

Phase 3

Phase 4

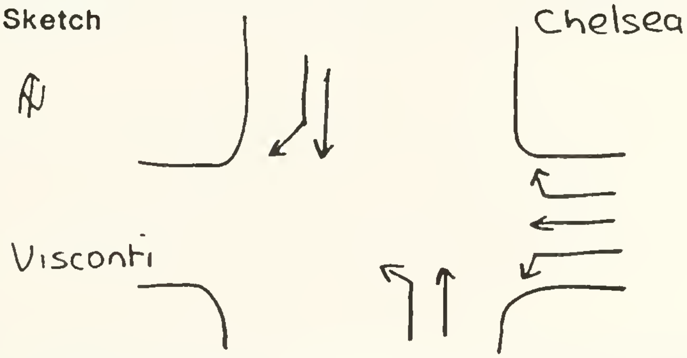
All

	ΣCM	v/c	LOS
AM	1261	v/c = $\frac{1261}{1700}$ = 0.74	C
PM	1124	v/c = $\frac{1124}{1700}$ = 0.66	B

Clippership Wharf. East Boston	**Critical Lane Movement Analysis** Chelsea @ Visconti 1990 No-Build	Figure

D-17

Sketch



Year:

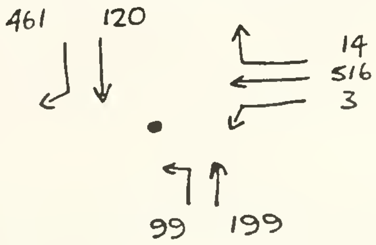
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	(2)	3	4
E	1.0	1800	1720	1650

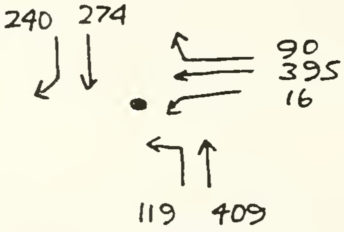
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

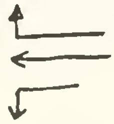
AM Peak Hour



PM Peak Hour

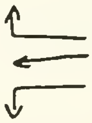


Phase 1



516(1.05)/1
+17(1.25)/1

563



395(1.05)/1
+ 106(1.25)/1

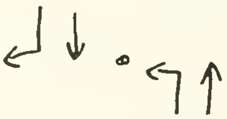
547

Phase 2

$\frac{461(1.25)+1.20(1.05)}{1}$

702

$\frac{240(1.25) + 274(1.05)}{1}$



588

Phase 3

Phase 4

All	ΣCM		LOS	ΣCM		LOS
	1265	v/c = $\frac{1265}{1700}$ = 0.74	C	1135	v/c = $\frac{1135}{1700}$ = 0.67	B

Clippership Wharf
East Boston

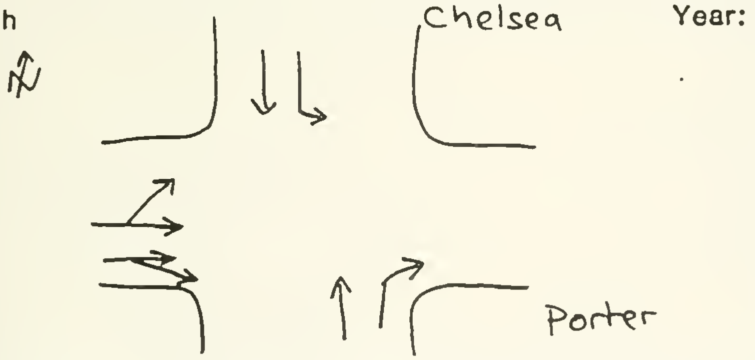
Critical Lane Movement Analysis

Chelsea @ Visconti 1990 Build

Figure

(D-18)

Sketch



Year:

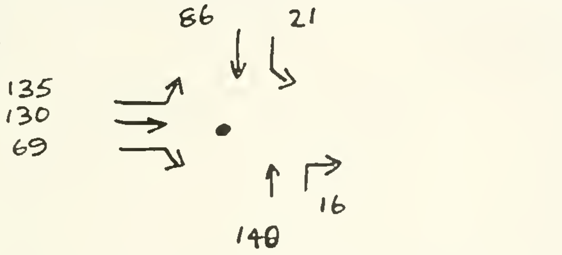
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	[✓ 2]	3	4
E	1.0	1800	1720	1650

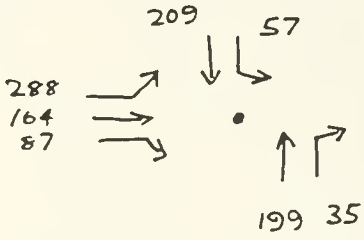
c = (CLV)(PHF/1.0)
c = (1800)(·95/1) = 1700

Volumes

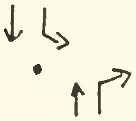
AM Peak Hour



PM Peak Hour



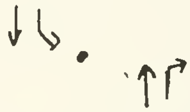
Phase 1



140(1.05)/1
+16(1.25)/1

168

209(1.05)/1
+ 57(1.25)/1

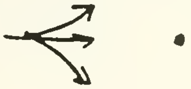


199(1.05)/1
+35(1.25)/1

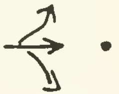
291

Phase 2

135(1.25)/1 + 130(1.05)/1 + 69(1.25)



392



$\frac{288(1.25)}{1} + \frac{164(1.05)}{1} + \frac{87(1.25)}{1}$

641

Phase 3

Phase 4

560

All

ΣCM		LOS	ΣCM		LOS
	v/c = $\frac{560}{1700}$ = 0·33	A	932	v/c = $\frac{932}{1700}$ = 0·55	A

Clippership Wharf.
East Boston.

Critical Lane Movement Analysis

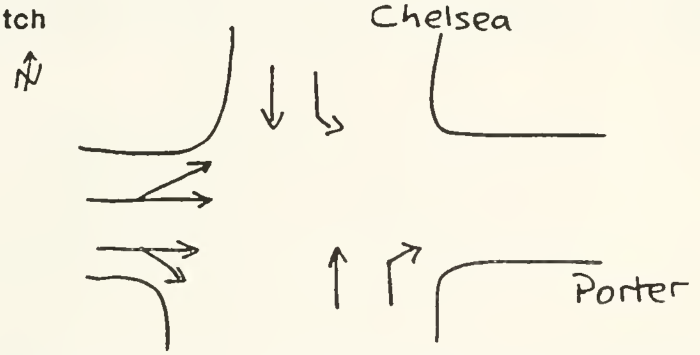
Chelsea @ Porter 1986 Existing

Figure

D-14

Sketch

Year:



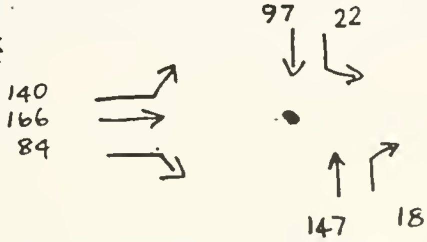
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1.
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

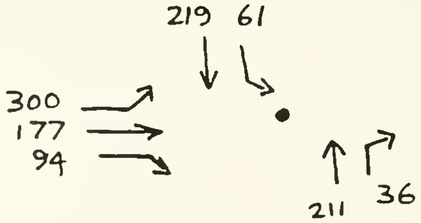
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

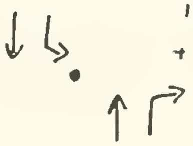
AM Peak Hour



PM Peak Hour



Phase 1



147(1.05)/1
+ 18(1.25)/1

177

219(1.05)/1
+ 61(1.25)/1

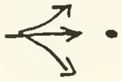
306

Phase 2

$\frac{140(1.25)}{1} + \frac{1.66(1.05)}{1} + \frac{84(1.25)}{1}$

454

$\frac{300(1.25)}{1} + \frac{177(1.05)}{1} + \frac{94(1.25)}{1}$



678

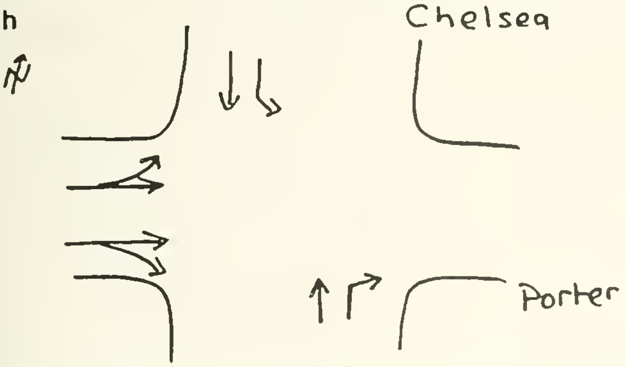
Phase 3

Phase 4

All	ΣCM 631	v/c = $\frac{631}{1700}$ = 0.37	LOS A	ΣCM 984	v/c = $\frac{984}{1700}$ = 0.58	LOS A

Clippership Wharf. East Boston	Critical Lane Movement Analysis Chelsea @ Porter 1990 No-Build	Figure

Sketch Chelsea **Year:**



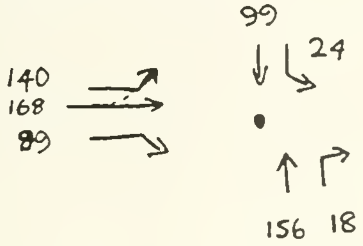
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

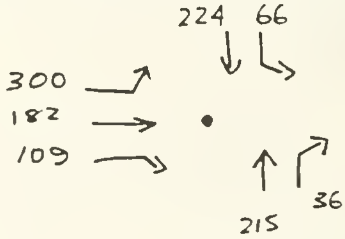
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

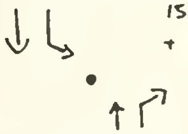


PM Peak Hour



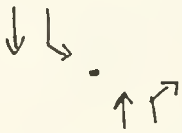
Phase 1

156(1.05)/1
+ 18(1.25)/1



186

244(1.05)/1
+ 66(1.25)/1



339

Phase 2

$\frac{140(1.25)}{1} + \frac{168(1.05)}{1} + \frac{89(1.25)}{1}$

463

$\frac{300(1.25)}{1} + \frac{182(1.05)}{1} + \frac{109(1.25)}{1}$

702

Phase 3

Phase 4

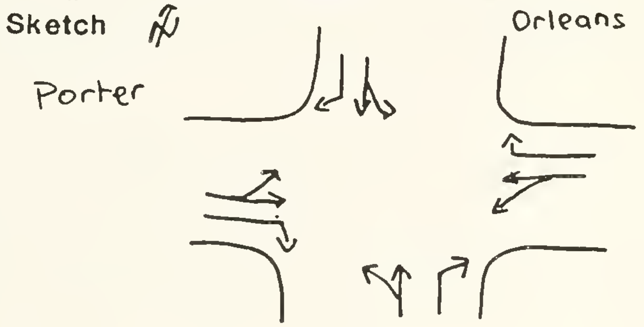
All	ΣCM	v/c	LOS	ΣCM	v/c	LOS
	649	v/c = $\frac{649}{1700}$ = 0.38	A	1041	v/c = $\frac{1041}{1700}$ = 0.61	B

Clippership Wharf
East Boston

Critical Lane Movement Analysis
1990
Chelsea @ Porter Build

Figure

Sketch Orleans Year:



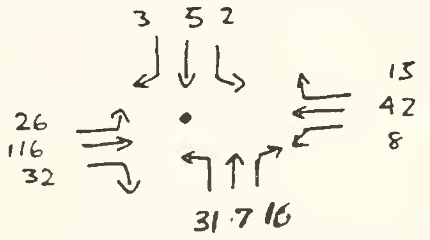
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

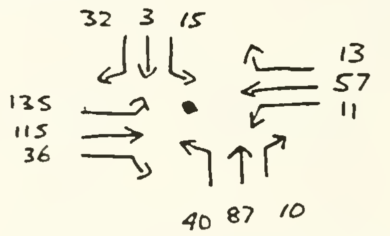
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

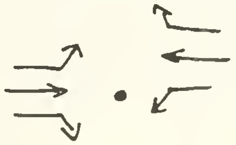


PM Peak Hour



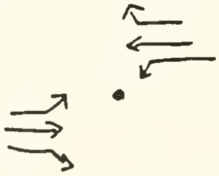
Phase 1

1.25(174)



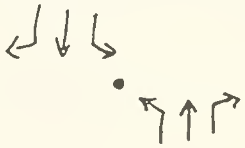
218

1.25(286)



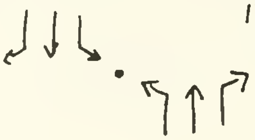
358

Phase 2



54(1.25)

68



137(1.25)

171

Phase 3

Phase 4

All	ΣCM 286	v/c = $\frac{286}{1700}$ = 0.17	LOS A	ΣCM 529	v/c = $\frac{529}{1700}$ = 0.31	LOS A

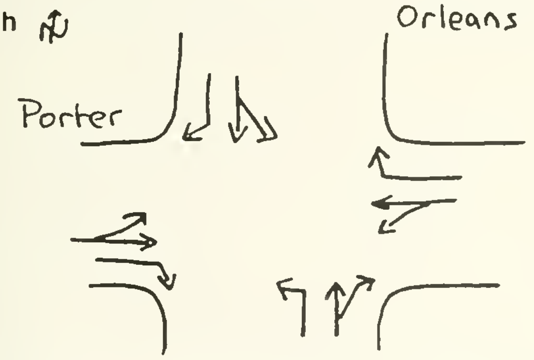
Clippership Wharf
East Boston

Critical Lane Movement Analysis
Porter @ Orleans 1986 Existing

Figure

(P-22)

Sketch



Year:

Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

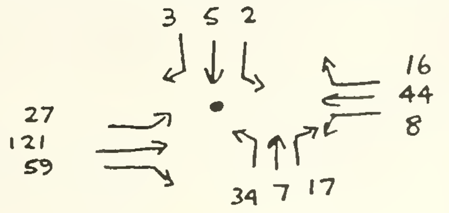
CLV		Signal Phases		
LOS	v/c	(2)	3	4
E	1.0	1800	1720	1650

c = (CLV)(PHF/1.0)

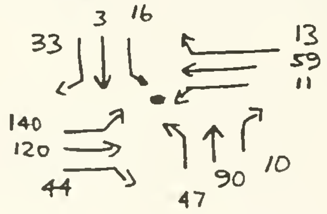
c = (1800)(·95/1) = 1700

Volumes

AM Peak Hour

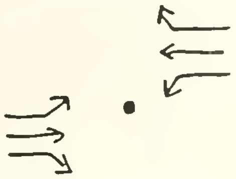


PM Peak Hour



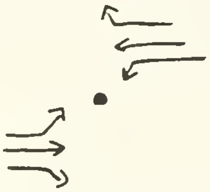
Phase 1

AM: 1·25(207) / 1



259

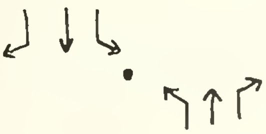
PM: 304(1·25) / 1



380

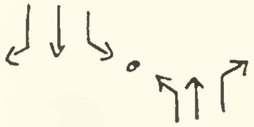
Phase 2

AM: 58(1·25).



73

PM: 147(1·25)



184.

Phase 3

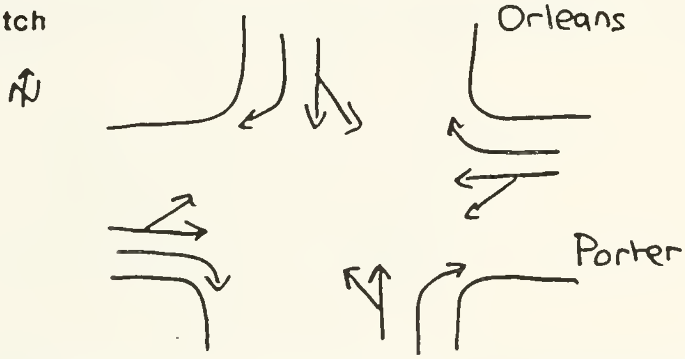
Phase 4

	ΣCM		LOS	ΣCM		LOS
All	332	v/c = 332/1700 = 0·2	A	564	v/c = 564/1700 = 0·33	A

Clippership Wharf. East Boston.	Critical Lane Movement Analysis Porter @ Orleans 1990 No-Build	Figure

(V-23)

Sketch



Year:

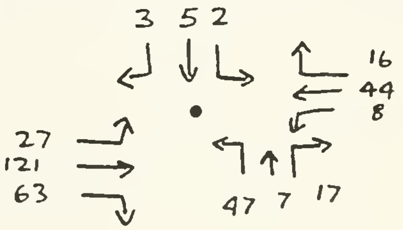
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	[✓ 2]	3	4
E	1.0	1800	1720	1650

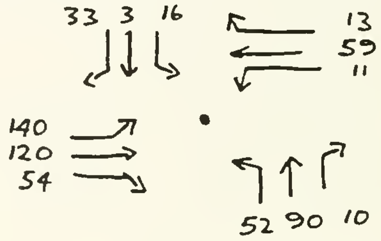
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

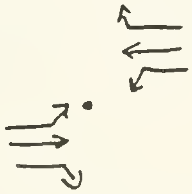


PM Peak Hour



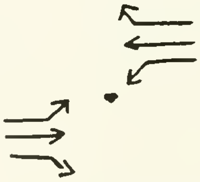
Phase 1

1.25(211)



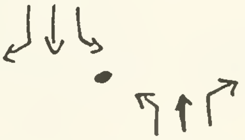
264

1.25(314)



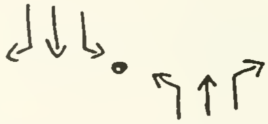
393

Phase 2



71(1.25)

89



152(1.25)

190

Phase 3

Phase 4

All	ΣCM 353	v/c = 353/1700 = 0.21	LOS A	ΣCM 583	v/c = 583/1700 = 0.34	LOS A

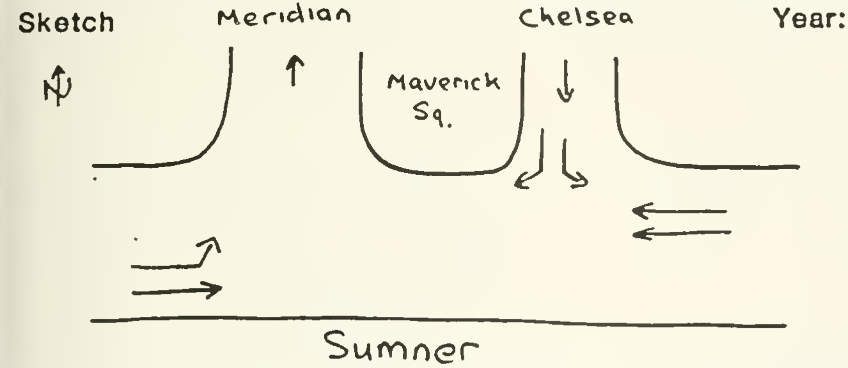
Clippership Wharf.
East Boston.

Critical Lane Movement Analysis

Porter @ Orleans 1990 Build

Figure

D-24



Year:

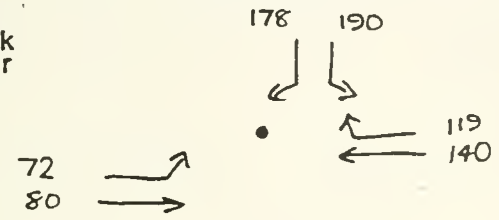
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

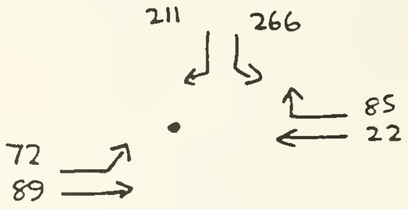
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

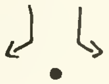
AM Peak Hour



PM Peak Hour

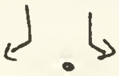


Phase 1



$368\frac{(1.25)}{1}$

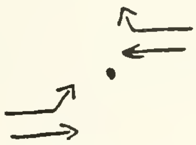
460



$477\frac{(1.25)}{1}$

596

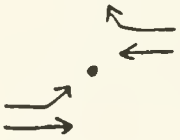
Phase 2



$159\frac{(1.25)}{1}$

199

$161\frac{(1.25)}{1}$



201

Phase 3

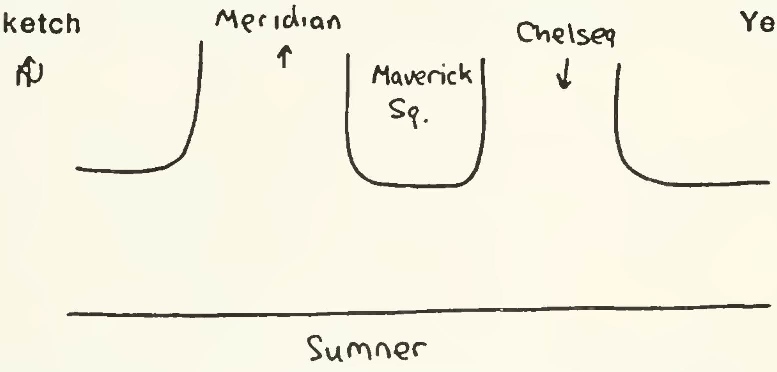
Phase 4

All	ΣCM		LOS	ΣCM		LOS
	659	v/c = $\frac{659}{1700}$ = 0.39	A	797	v/c = $\frac{797}{1700}$ = 0.47	A

Clippership Wharf. East Boston	Critical Lane Movement Analysis Sumner @ Maverick Sq. Existing 1986	Figure

V-25

Sketch



Year:

Lane Adjustment Factors (AF)

ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks

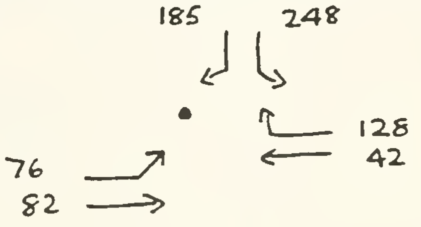
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	(2)	3	4
E	1.0	1800	1720	1650

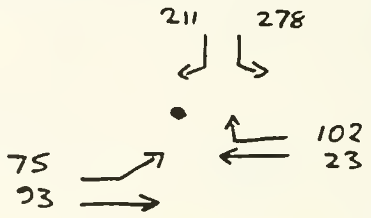
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

AM Peak Hour

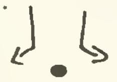


PM Peak Hour



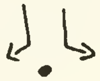
Phase 1

533(1.25)



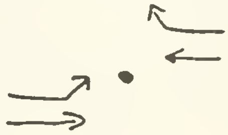
666

489(1.25)



611

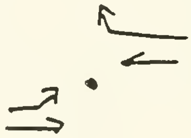
Phase 2



170(1.25

213

168(1.25)



210

Phase 3

Phase 4

All	ΣCM		LOS	ΣCM		LOS
	879	v/c = $\frac{879}{1700}$ = 0.52	A	821	v/c = $\frac{821}{1700}$ = 0.48	A

Clippership Wharf.
East Boston

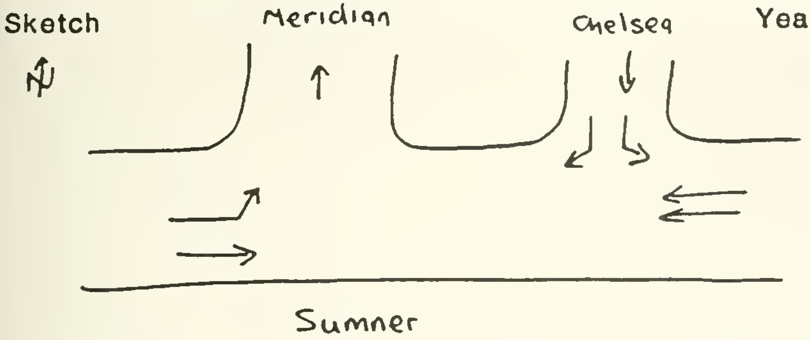
Critical Lane Movement Analysis

Sumner @ Maverick Sq. 1990 No-Build

Figure

(D-26)

Sketch



Year:

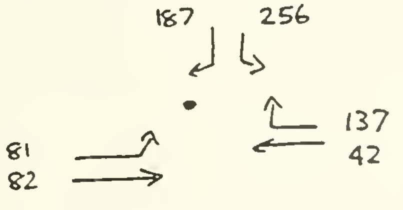
Lane Adjustment Factors (AF)
ST: 1.00/1, 1.05/2, 1.10/3
RT: 1.25/0, 1.10/1
LT: 1.25/0, 1.10/1, 1.35/2
T: 1% for each 1% trucks
v = (vol)(AF)(100-T)(1/L)

CLV		Signal Phases		
LOS	v/c	②	3	4
E	1.0	1800	1720	1650

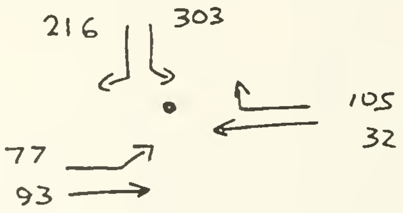
c = (CLV)(PHF/1.0)
c = (1800)(.95/1) = 1700

Volumes

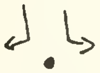
AM Peak Hour



PM Peak Hour

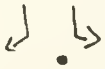


Phase 1



(443)(1.25)

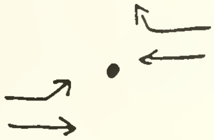
554



519 (1.25)

649

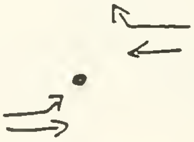
Phase 2



179(1.25)

224

170(1.25)



213

Phase 3

Phase 4

All	ΣCM	v/c	LOS	ΣCM	v/c	LOS
	778	v/c = 778/1700 = 0.46	A	862	v/c = 862/1700 = 0.51	A

Clippership Wharf East Boston.	Critical Lane Movement Analysis Sumner @ Maverick Sq. 1990 Build	Figure

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```
-----------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:     B-1, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:   Border at Rotary                         1986 Existing
YEAR:     1986
=================================================================
    VOLUMES--AM
Approach:  Border St. NB     Border St. SB     Rotary St. WB
Movement:    At       Ar       Bl       Bt       Cl       Cr
Volume:      54       15      118      116       28      105
pch:         54       15      130      116       31      116

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
-----------------------------------------------------------------
    VOLUMES--PM
Approach:  Border St. NB     Border St. SB     Rotary St. WB
Movement:    At       Ar       Bl       Bt       Cl       Cr
Volume:     135       24      196       97       38      147
pch:        135       24      216       97       42      162

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
=================================================================


                       LOS SUMMARY
                  AM Peak            PM Peak
              Reserve    LOS     Reserve    LOS

Right out of
side street:     1209     A         979      A

Left into
side street:     1042     A         840      A

Left out of
side street:      548     A         382      B
```

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```
------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      B-1, NO-Build
JJECT: Clippership Wharf, East Boston
C'N:   Border at Rotary                          1990 NO-Build
AR:     1990
==================================================================
  VOLUMES--AM
proach:  Border St. NB     Border St. SB     Rotary St. WB
vement:    At        Ar      Bl        Bt       Cl       Cr
lume:      56        16     123       121       29      109
n:         56        16     135       121       32      120

                   RT-C    LT-B      LT-C
it. Gaps:           4.5      5        6.5
------------------------------------------------------------------
  VOLUMES--PM
proach:  Border St. NB     Border St. SB     Rotary St. WB
vement:    At        Ar      Bl        Bt       Cl       Cr
lume:     140        25     204       101       40      153
n:        140        25     224       101       44      168

                   RT-C    LT-B      LT-C
it. Gaps:           4.5      5        6.5
==================================================================


                      LOS SUMMARY
                  AM Peak             PM Peak
            Reserve    LOS     Reserve    LOS

ght out of
de street:     1201     A         967      A

ft into
de street:     1033     A         825      A

ft out of
de street:      534     A         365      B
```

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```
------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-1, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Border at Rotary                           1990 Build
YEAR:      1990
========================================================================
     VOLUMES--AM
Approach:  Border St. NB      Border St. SB      Rotary St. WB
Movement:    At         Ar       Bl        Bt       Cl        Cr
Volume:      66         26      123       127       37       109
pch:         66         26      135       127       41       120

                      RT-C      LT-B      LT-C
Crit. Gaps:            4.5        5        6.5
------------------------------------------------------------------------
     VOLUMES--PM
Approach:  Border St. NB      Border St. SB      Rotary St. WB
Movement:    At         Ar       Bl        Bt       Cl        Cr
Volume:     144         30      204       111       73       153
pch:        144         30      224       111       80       168

                      RT-C      LT-B      LT-C
Crit. Gaps:            4.5        5        6.5
========================================================================


                             LOS SUMMARY
                      AM Peak             PM Peak
                  Reserve    LOS      Reserve    LOS


Right out of
side street:        1181      A          958      A

Left into
side street:        1006      A          814      A

Left out of
side street:         506      A          318      B
```

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```
-----------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      B-2, Existing
OJECT: Clippership Wharf, East Boston
C'N:   Meridian at Rotary                        1986 Existing
AR:     1986
=======================================================================
  VOLUMES--AM
proach: Meridian St SB   Meridian St NB     Rotary St. WB
vement:   At        Ar       Bl       Bt       Cl        Cr
lume:     559       48       85       336      38        95
h:        559       48       94       336      42        105

                 RT-C     LT-B     LT-C
it. Gaps:         4.5       5       6.5
-----------------------------------------------------------------------
  VOLUMES--PM
proach: Meridian St SB   Meridian St NB     Rotary St. WB
vement:   At        Ar       Bl       Bt       Cl        Cr
lume:     459       55       130      421      86        154
h:        459       55       143      421      95        169

                 RT-C     LT-B     LT-C
it. Gaps:         4.5       5       6.5
=======================================================================


                    LOS SUMMARY
               AM Peak            PM Peak
            Reserve   LOS     Reserve    LOS

ght out of
de street:      663    A         611     A

ft into
de street:      533    A         556     A

ft out of
de street:      153    D          80     E
```

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```
-----------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-2, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Meridian at Rotary                        1990 NO-Build
YEAR:      1990
=================================================================
     VOLUMES--AM
Approach: Meridian St SB    Meridian St NB     Rotary St. WB
Movement:    At       Ar       Bl      Bt        Cl       Cr
Volume:     610       50       88     358        40       99
pch:        610       50       97     358        44      109

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
-----------------------------------------------------------------
     VOLUMES--PM
Approach: Meridian St SB    Meridian St NB     Rotary St. WB
Movement:    At       Ar       Bl      Bt        Cl       Cr
Volume:     484       57      136     464        89      160
pch:        484       57      150     464        98      176

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
=================================================================


                         LOS SUMMARY
                    AM Peak            PM Peak
               Reserve     LOS    Reserve     LOS

Right out of
side street:      618       A        581       A

Left into
side street:      492       A        527       A

Left out of
side street:      128       D         56       E
```

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```
-----------------------------------------------------------------
CULAR 212 CAPACITY ANALYSIS—UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------
E:    December 1987          ALTERNATIVE:      B-2, Build
JECT: Clippership Wharf, East Boston
'N:   Meridian at Rotary                        1990 Build
R:     1990
=================================================================
 VOLUMES--AM
roach: Meridian St SB   Meridian St NB     Rotary St. WB
ement:   At         Ar        Bl       Bt        Cl        Cr
ume:    616         58        88      363        50        99
:       616         58        97      363        55       109

                  RT-C      LT-B     LT-C
t. Gaps:           4.5         5      6.5
-----------------------------------------------------------------
 VOLUMES--PM
roach: Meridian St SB   Meridian St NB     Rotary St. WB
ement:   At         Ar        Bl       Bt        Cl        Cr
ume:    508         87       136      465        94       160
:       508         87       150      465       103       176

                  RT-C      LT-B     LT-C
t. Gaps:           4.5         5      6.5
=================================================================




                    LOS SUMMARY
               AM Peak            PM Peak
            Reserve   LOS     Reserve    LOS

nt out of
e street:       609    A          548     A

: into
e street:       481    A          486     A

: out of
e street:       112    D           40     E
```

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```
-----------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-3, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:   Bremen at Visconti                         1986 Existing
YEAR:      1986
=======================================================================
     VOLUMES--AM
Approach:  Bremen St SB      Bremen St NB        Visconti EB
Movement:   At        Ar      Bl        Bt        Cl        Cr
Volume:    249       470       0        87         0         0
pch:       249       470       0        87         0         0

                    RT-C     LT-B      LT-C
Crit. Gaps:          4.5        5       6.5
-----------------------------------------------------------------------
     VOLUMES--PM
Approach:  Bremen St SB      Bremen St NB        Visconti EB
Movement:   At        Ar      Bl        Bt        Cl        Cr
Volume:    235       380       0       181         0         0
pch:       235       380       0       181         0         0

                    RT-C     LT-B      LT-C
Crit. Gaps:          4.5        5       6.5
=======================================================================


                           LOS SUMMARY
                      AM Peak           PM Peak
                  Reserve    LOS    Reserve    LOS

Right out of
side street:          852     A         836     A

Left into
side street:          550    A          621     A

Left out of
side street:          419    A          398     B
```

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```
-------------------------------------------------------------
CULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-------------------------------------------------------------
E:    December 1987          ALTERNATIVE:      B-3, NO-Build
JECT: Clippership Wharf, East Boston
'N:   Bremen at Visconti                        1990 NO-Build
R:     1990
=============================================================
 VOLUMES--AM
roach:  Bremen St SB      Bremen St NB       Visconti EB
ement:   At        Ar       Bl       Bt        Cl        Cr
ume:     264       489      0        95        0         0
:        264       489      0        95        0         0

                  RT-C     LT-B     LT-C
t. Gaps:           4.5      5        6.5
-------------------------------------------------------------
 VOLUMES--PM
roach:  Bremen St SB      Bremen St NB       Visconti EB
ement:   At        Ar       Bl       Bt        Cl        Cr
ume:     246       395      0        198       0         0
:        246       395      0        198       0         0

                  RT-C     LT-B     LT-C
:. Gaps:           4.5      5        6.5
=============================================================




                    LOS SUMMARY
                AM Peak            PM Peak
            Reserve   LOS      Reserve    LOS

it out of
? street:       830    A         819       A

. into
? street:       528    A         602       A

. out of
? street:       399    B         377       B
```

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```
--------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
--------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-3, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Bremen at Visconti                        1990 Build       .
YEAR:      1990
==========================================================================
     VOLUMES--AM
Approach:  Bremen St SB       Bremen St NB       Visconti EB
Movement:   At        Ar       Bl        Bt       Cl        Cr
Volume:     268       489      0         117      0         0
pch:        268       489      0         117      0         0

                      RT-C     LT-B      LT-C
Crit. Gaps:           4.5      5         6.5
--------------------------------------------------------------------------
     VOLUMES--PM
Approach:  Bremen St SB       Bremen St NB       Visconti EB
Movement:   At        Ar       Bl        Bt       Cl        Cr
Volume:     256       395      0         207      0         0
pch:        256       395      0         207      0         0

                      RT-C     LT-B      LT-C
Crit. Gaps:           4.5      5         6.5
==========================================================================




                          LOS SUMMARY
                     AM Peak            PM Peak
                 Reserve    LOS     Reserve    LOS

Right out of
side street:        827      A         809      A

Left into
side street:        526      A         535      A

Left out of
side street:        384      B         367      B
```

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```
------------------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------------
ATE:    December 1987           ALTERNATIVE:      B-4, Existing
ROJECT: Clippership Wharf, East Boston
OC'N:   Orleans at Marginal                        1986 Existing
EAR:     1986
========================================================================
   VOLUMES--AM
pproach:  Marginal WB         Marginal EB       Orleans SB
ovement:   At        Ar        Bl        Bt        Cl        Cr
olume:      0        30         0         0        50         0
ch:         0        30         0         0        55         0

                  RT-C      LT-B      LT-C
rit. Gaps:         4.5        5        6.5
------------------------------------------------------------------------
   VOLUMES--PM
pproach:  Marginal WB         Marginal EB       Orleans SB
ovement:   At        Ar        Bl        Bt        Cl        Cr
olume:      0        32         0         0        40         0
ch:         0        32         0         0        44         0

                  RT-C      LT-B      LT-C
rit. Gaps:         4.5        5        6.5
========================================================================


                        LOS SUMMARY
                  AM Peak              PM Peak
              Reserve    LOS      Reserve    LOS

ight out of
ide street:      1390      A         1319      A

eft into
ide street:      1227      A         1224      A

eft out of
ide street:       908      A          917      A
```

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```
-----------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-4, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Orleans at Marginal                        1990 NO-Build
YEAR:     1990
=================================================================
     VOLUMES--AM
Approach:  Marginal WB        Marginal EB        Orleans SB
Movement:    At       Ar       Bl       Bt       Cl       Cr
Volume:      0        21       0        0        86       0
pch:         0        21       0        0        95       0

                     RT-C    LT-B     LT-C
Crit. Gaps:          4.5      5       6.5
-----------------------------------------------------------------
     VOLUMES--PM
Approach:  Marginal WB        Marginal EB        Orleans SB
Movement:    At       Ar       Bl       Bt       Cl       Cr
Volume:      0        22       0        0        67       0
pch:         0        22       0        0        74       0

                     RT-C    LT-B     LT-C
Crit. Gaps:          4.5      5       6.5
=================================================================


                         LOS SUMMARY
                    AM Peak           PM Peak
                 Reserve   LOS    Reserve    LOS

Right out of
side street:       1397     A       1326      A

Left into
side street:       1239     A       1238      A

Left out of
side street:        874     A        895      A
```

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```
---------------------------------------------------------------
CULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
---------------------------------------------------------------
E:    December 1987          ALTERNATIVE:      B-4, Build
JECT: Clippership Wharf, East Boston
'N:   Orleans at Marginal                       1990 Build
R:     1990
===============================================================
  VOLUMES--AM
roach:  Marginal WB         Marginal EB        Orleans SB
ement:    At        Ar        Bl       Bt        Cl        Cr
ume:       0        21         0        0        86         0
:          0        21         0        0        95         0

                 RT-C      LT-B     LT-C
t. Gaps:          4.5         5      6.5
---------------------------------------------------------------
  VOLUMES--PM
roach:  Marginal WB         Marginal EB        Orleans SB
ement:    At        Ar        Bl       Bt        Cl        Cr
ume:       0        22         0        0        67         0
:          0        22         0        0        74         0

                 RT-C      LT-B     LT-C
t. Gaps:          4.5         5      6.5
===============================================================


                     LOS SUMMARY
                AM Peak            PM Peak
             Reserve    LOS     Reserve    LOS


nt out of
e street:       1397     A         1326     A

t into
e street:       1239     A         1238     A

t out of
e street:        874     A          895     A
```

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```
------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-5, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:   Orleans at Webster                         1986 Existing
YEAR:     1986
==================================================================
     VOLUMES--AM
Approach:  Orleans St NB     Orleans St SB     Webster St WB
Movement:   At        Ar       Bl       Bt       Cl        Cr
Volume:     30         0        0       49        1        49
pch:        30         0        0       49        1        54

                   RT-C     LT-B     LT-C
Crit. Gaps:         4.5        5      6.5
------------------------------------------------------------------
     VOLUMES--PM
Approach:  Orleans St NB     Orleans St SB     Webster St WB
Movement:   At        Ar       Bl       Bt       Cl        Cr
Volume:     32         0        0       38        2        65
pch:        32         0        0       38        2        72

                   RT-C     LT-B     LT-C
Crit. Gaps:         4.5        5      6.5
==================================================================




                        LOS SUMMARY
                   AM Peak           PM Peak
                Reserve   LOS     Reserve   LOS

Right out of
side street:       1315    A         1224    A

Left into
side street:       1227    A         1224    A

Left out of
side street:        874    A          885    A
```

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```
---------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
---------------------------------------------------------------------
TE:    December 1987           ALTERNATIVE:      B-5, NO-Build
OJECT: Clippership Wharf, East Boston
C'N:   Orleans at Webster                          1990 NO-Build
AR:     1990
=====================================================================
   VOLUMES--AM
proach:  Orleans St NB     Orleans St SB      Webster St WB
vement:    At       Ar       Bl       Bt        Cl        Cr
lume:      21        0        0       86         1        51
h:         21        0        0       86         1        56

                 RT-C     LT-B     LT-C
t. Gaps:          4.5       5       6.5
---------------------------------------------------------------------
   VOLUMES--PM
proach:  Orleans St NB     Orleans St SB      Webster St WB
vement:    At       Ar       Bl       Bt        Cl        Cr
lume:      67        0        0       22         2        68
n:         67        0        0       22         2        75

                 RT-C     LT-B     LT-C
t. Gaps:          4.5       5       6.5
=====================================================================




                        LOS SUMMARY
                  AM Peak            PM Peak
              Reserve    LOS    Reserve    LOS


ght out of
de street:       1326     A        1172     A

ft into
de street:       1239     A        1175     A

ft out of
de street:        838     A         860     A
```

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```
------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:      B-5, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Orleans at Webster                        1990 Build
YEAR:     1990
==================================================================
     VOLUMES--AM
Approach:  Orleans St NB    Orleans St SB    Webster St WB
Movement:    At       Ar       Bl      Bt       Cl      Cr
Volume:      21        0        0      86        1      51
pch:         21        0        0      86        1      56

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
------------------------------------------------------------------
     VOLUMES--PM
Approach:  Orleans St NB    Orleans St SB    Webster St WB
Movement:    At       Ar       Bl      Bt       Cl      Cr
Volume:      67        0        0      22        2      68
pch:         67        0        0      22        2      75

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
==================================================================




                          LOS SUMMARY
                    AM Peak           PM Peak
                 Reserve    LOS    Reserve    LOS


Right out of
side street:       1326      A       1172      A

Left into
side street:       1239      A       1175      A

Left out of
side street:        838      A        860      A
```

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```
---------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
---------------------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      B-6, Existing
OJECT: Clippership Wharf, East Boston
C'N:   Summer at Clippership Lane                  1986 Existing
AR:     1986
=====================================================================
  VOLUMES--AM
proach:   Summer St EB      Summer St WB      Clippership Ln NB
vement:    At        Ar      Bl        Bt       Cl         Cr
lume:     142         2       2        61        3          6
h:        142         2       2        61        3          7

                   RT-C     LT-B     LT-C
it. Gaps:           4.5       5       6.5
---------------------------------------------------------------------
  VOLUMES--PM
proach:   Sumner St EB      Sumner St WB      Clippership Ln NB
vement:    At        Ar      Bl        Bt       Cl         Cr
lume:     161         4       7        69        1          2
h:        161         4       8        69        1          2

                   RT-C     LT-B     LT-C
it. Gaps:           4.5       5       6.5
=====================================================================


                         LOS SUMMARY
                    AM Peak           PM Peak
               Reserve    LOS    Reserve    LOS

ght out of
de street:        1210     A        1119     A

ft into
de street:        1073     A        1041     A

ft out of
de street:         720     A         685     A
```

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```
------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:      B-6, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Summer at Clippership Lane                 1990 NO-Build
YEAR:     1990
==================================================================
     VOLUMES--AM
Approach:   Summer St EB      Summer St WB      Clippership Ln NB
Movement:    At        Ar      Bl       Bt        Cl        Cr
Volume:     148         2       2       63         3         6
pch:        148         2       2       63         3         7

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
------------------------------------------------------------------
     VOLUMES--PM
Approach:   Summer St EB      Summer St WB      Clippership Ln NB
Movement:    At        Ar    . Bl       Bt        Cl        Cr
Volume:     167         4       7       69         1         2
pch:        167         4       8       69         1         2

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
==================================================================




                         LOS SUMMARY
                   AM Peak           PM Peak
               Reserve    LOS    Reserve    LOS

Right out of
side street:      1202     A       1112      A

Left into
side street:      1065     A       1033      A

Left out of
side street:       712     A        679      A
```

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```
-------------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-------------------------------------------------------------------------
TE:    December 1987           ALTERNATIVE:      B-6, Build
OJECT: Clippership Wharf, East Boston
C'N:   Sumner at Clippership Lane                  1990 Build
AR:     1990
=========================================================================
  VOLUMES--AM
proach:    Sumner St EB       Sumner St WB      Clippership Ln NB
vement:    At        Ar       Bl        Bt        Cl        Cr
lume:     148        14        7        63        48        11
n:        148        14        8        63        53        12

                  RT-C      LT-B      LT-C
it. Gaps:          4.5        5        6.5
-------------------------------------------------------------------------
  VOLUMES--PM
proach:    Sumner St EB       Sumner St WB      Clippership Ln NB
vement:    At        Ar       Bl        Bt        Cl        Cr
lume:     167        44       21        69        19         4
n:        167        44       23        69        21         4

                  RT-C      LT-B      LT-C
t. Gaps:           4.5        5        6.5
=========================================================================




                        LOS SUMMARY
                   AM Peak             PM Peak
               Reserve    LOS      Reserve    LOS

ght out of
e street:        1183      A         1086      A

ft into
e street:        1044      A          971      A

ft out of
e street:         647      A          619      A
```

D-45

```
--------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
--------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-7, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Marginal at Lobster Terminal                1990 Build
YEAR:     1990
====================================================================
     VOLUMES--AM
Approach: Marginal St EB    Marginal St WB      Terminal NB
Movement:    At        Ar      Bl        Bt       Cl        Cr
Volume:      76        10       0        16        5         0
pch:         76        10       0        16        6         0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
--------------------------------------------------------------------
     VOLUMES--PM
Approach: Marginal St EB    Marginal St WB      Terminal NB
Movement:    At        Ar      Bl        Bt       Cl        Cr
Volume:      17         5       0        57       10         0
pch:         17         5       0        57       11         0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
====================================================================


                             LOS SUMMARY
                         AM Peak            PM Peak
                     Reserve    LOS     Reserve    LOS

Right out of
side street:           1298     A         1314     A

Left into
side street:           1149     A         1238     A

Left out of
side street:            846     A          867     A
```

D-46

```
-------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-------------------------------------------------------------
ATE:    December 1987          ALTERNATIVE:     B-7, Existing
ROJECT: Clippership Wharf, East Boston
OC'N:   Marginal at Lobster Terminal                1986 Existing
EAR:     1986
=============================================================
  VOLUMES--AM
pproach: Marginal St EB    Marginal St WB      Terminal NB
ovement:   At        Ar        Bl       Bt        Cl         Cr
olume:     30         0         0       50         0          0
th:        30         0         0       50         0          0

                    RT-C      LT-B     LT-C
it. Gaps:            4.5        5       6.5
-------------------------------------------------------------
  VOLUMES--PM
pproach: Marginal St EB    Marginal St WB      Terminal NB
ovement:   At        Ar        Bl       Bt        Cl         Cr
olume:     40         0         0       32         0          0
th:        40         0         0       32         0          0

                    RT-C      LT-B     LT-C
it. Gaps:            4.5        5       6.5
=============================================================


                     LOS SUMMARY
                AM Peak              PM Peak
            Reserve    LOS     Reserve    LOS


ght out of
de street:      1369     A        1285      A

ft into
de street:      1227     A        1212      A

ft out of
de street:       874     A         884      A
```

D-47

```
-----------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:     B-7, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Marginal at Lobster Terminal                1990 NO-Build
YEAR:     1990
=======================================================================
     VOLUMES--AM
Approach: Marginal St EB    Marginal St WB      Terminal NB
Movement:   At       Ar       Bl       Bt       Cl       Cr
Volume:     76       10       0        16       5        0
pch:        76       10       0        16       6        0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5       5       6.5
-----------------------------------------------------------------------
     VOLUMES--PM
Approach: Marginal St EB    Marginal St WB      Terminal NB
Movement:   At       Ar       Bl       Bt       Cl       Cr
Volume:     17       5        0        57       10       0
pch:        17       5        0        57       11       0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5       5       6.5
=======================================================================


                          LOS SUMMARY
                    AM Peak           PM Peak
                 Reserve   LOS     Reserve   LOS

Right out of
side street:       1298     A        1314     A

Left into
side street:       1149     A        1238     A

Left out of
side street:        846     A         867     A
```

D-48

```
-----------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-----------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      B-8, Existing
ROJECT: Clippership Wharf, East Boston
C'N:   Summer at Havre                           1986 Existing
AR:     1986
===========================================================
  VOLUMES--AM
proach: Summer St. WB     Summer St. EB      Havre St. SB
vement:    At        Ar       Bl       Bt       Cl        Cr
lume:      48        15        5      142        0         0
h:         48        15        6      142        0         0
                                             144
                   RT-C     LT-B     LT-C
it. Gaps:           4.5        5      6.5
-----------------------------------------------------------
  VOLUMES--PM
proach: Summer St. WB     Summer St. EB      Havre St. SB
vement:    At        Ar       Bl       Bt       Cl        Cr
lume:      52        25        5      160        0         0
h:         52        25        6      160        0         0

                   RT-C     LT-B     LT-C
it. Gaps:           4.5        5      6.5
===========================================================




                        LOS SUMMARY
                  AM Peak            PM Peak
              Reserve   LOS      Reserve   LOS

ght out of
de street:       1333     A         1250     A

ft into
de street:       1175     A         1156     A

ft out of
de street:        725     A          696     A
```

D-49

```
------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:     B-8, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Sumner at Havre                           1990 NO-Build
YEAR:     1990
==================================================================
     VOLUMES--AM
Approach: Sumner St. WB     Sumner St. EB      Havre St. SB
Movement:    At       Ar       Bl       Bt       Cl        Cr
Volume:      49       15        6      148        0         0
pch:         49       15        7      148        0         0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
------------------------------------------------------------------
     VOLUMES--PM
Approach: Sumner St. WB     Sumner St. EB      Havre St. SB
Movement:    At       Ar       Bl       Bt       Cl        Cr
Volume:      52       25        6      167        0         0
pch:         52       25        7      167        0         0

                    RT-C     LT-B     LT-C
Crit. Gaps:          4.5        5      6.5
==================================================================




                       LOS SUMMARY
                  AM Peak           PM Peak
               Reserve   LOS     Reserve   LOS

Right out of
side street:      1331     A        1250     A

Left into
side street:      1172     A        1155     A

Left out of
side street:       716     A         688     A
```

D-50

```
------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------
TE:     December 1987          ALTERNATIVE:      B-8, Build
OJECT: Clippership Wharf, East Boston
C'N:    Summer at Havre                          1990 Build
AR:       1990
==================================================================
   VOLUMES--AM
proach: Summer St. WB     Summer St. EB      Havre St. SB
vement:   At        Ar       Bl      Bt        Cl        Cr
lume:     69        40       6       162       0         0
h:        69        40       7       162       0         0

                  RT-C     LT-B     LT-C
it. Gaps:          4.5       5       6.5
------------------------------------------------------------------
   VOLUMES--PM
proach: Summer St. WB     Summer St. EB      Havre St. SB
vement:   At        Ar       Bl      Bt        Cl        Cr
lume:     61        34       6       207       0         0
h:        61        34       7       207       0         0

                  RT-C     LT-B     LT-C
it. Gaps:          4.5       5       6.5
==================================================================




                        LOS SUMMARY
                  AM Peak           PM Peak
              Reserve   LOS     Reserve   LOS

ght out of
de street:       1287     A       1232     A

ft into
de street:       1112     A       1131     A

ft out of
de street:        668     A        635     A
```

D-51

```
------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-9, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:   Summer at Paris                             1986 Existing
YEAR:     1986
========================================================================
     VOLUMES--AM
Approach: Summer St. WB     Summer St. EB       Paris St. SB
Movement:    At        Ar      Bl       Bt      Cl        Cr
Volume:      50         0       0      120      30        10
pch:         50         0       0      120      33        11

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
------------------------------------------------------------------------
     VOLUMES--PM
Approach: Summer St. WB     Summer St. EB       Paris St. SB
Movement:    At        Ar      Bl       Bt      Cl        Cr
Volume:      65         0       0      130      25        10
pch:         65         0       0      130      28        11

                     RT-C     LT-B     LT-C
Crit. Gaps:           4.5        5      6.5
========================================================================




                             LOS SUMMARY
                       AM Peak              PM Peak
                   Reserve    LOS       Reserve    LOS

Right out of
side street:          1329     A           1239     A

Left into
side street:          1198     A           1178     A

Left out of
side street:           731     A            708     A
```

D-52

```
--------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
--------------------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      B-9, NO-Build
OJECT: Clippership Wharf, East Boston
C'N:   Summer at Paris                            1990 NO-Build
AR:     1990
====================================================================
  VOLUMES--AM
proach: Summer St. WB     Summer St. EB       Paris St. SB
vement:    At        Ar        Bl        Bt        Cl        Cr
lume:      52         0         0       127        31        10
h:         52         0         0       127        34        11

                 RT-C      LT-B      LT-C
it. Gaps:         4.5         5       6.5
--------------------------------------------------------------------
  VOLUMES--PM
proach: Summer St. WB     Summer St. EB       Paris St. SB
vement:    At        Ar        Bl        Bt        Cl        Cr
lume:      67         0         0       142        26        10
h:         67         0         0       142        29        11

                 RT-C      LT-B      LT-C
it. Gaps:         4.5         5       6.5
====================================================================




                       LOS SUMMARY
                 AM Peak             PM Peak
              Reserve    LOS      Reserve    LOS


ght out of
de street:      1327      A         1236      A

ft into
de street:      1196      A         1175      A

ft out of
de street:       719      A          691      A
```

D-53

```
-------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (3-WAY)
-------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      B-9, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Summer at Paris                           1990 Build
YEAR:      1990
=========================================================================
     VOLUMES--AM
Approach: Sumner St. WB     Summer St. EB       Paris St. SB
Movement:     At        Ar      Bl        Bt       Cl        Cr
Volume:       59         0       0       120       32        10
pch:          59         0       0       120       35        11

                      RT-C     LT-B     LT-C
Crit. Gaps:            4.5        5      6.5
-------------------------------------------------------------------------
     VOLUMES--PM
Approach: Sumner St. WB     Summer St. EB       Paris St. SB
Movement:     At        Ar      Bl        Bt       Cl        Cr
Volume:       68         0       0       139       33        12
pch:          68         0       0       139       36        13

                      RT-C     LT-B     LT-C
Crit. Gaps:            4.5        5      6.5
=========================================================================



                              LOS SUMMARY
                        AM Peak             PM Peak
                    Reserve    LOS     Reserve    LOS

Right out of
side street:          1317      A        1233      A

Left into
side street:          1186      A        1174      A

Left out of
side street:           718      A         687      A
```

D-54

```
------------------------------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
------------------------------------------------------------------------------------------
TE:    December 1987          ALTERNATIVE:      C-1, Existing
JECT: Clippership Wharf, East Boston
'N:    Border at Saratoga                         1986 Existing
AR:     1986
==========================================================================================
  VOLUMES--AM
roach:     Border Street SB             Border Street NB          Parking Lot Outbound          Saratoga Street WB
ement:   Al       At       Ar        Bl       Bt       Br        Cl       Ct       Cr        Dl       Dt       Dr
ume:     53      180        9        13      114       32         8       16       13        41       10       44
:        58      180        9        14      114       32         9       18       14        45       11       48

                RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
t. Gaps:           5         5         5         5         6         6       6.5       6.5
------------------------------------------------------------------------------------------
  VOLUMES--PM
roach:     Border Street SB             Border Street NB          Parking Lot Outbound          Saratoga Street WB
ement:   Al       At       Ar        Bl       Bt       Br        Cl       Ct       Cr        Dl       Dt       Dr
ume:     98      175       42        42      210       30        30       40       80        38       69       77
:       108      175       42        46      210       30        33       44       88        42       76       85

                RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
t. Gaps:           5         5         5         5         6         6       6.5       6.5
==========================================================================================


                                    LOS SUMMARY
                    AM Peak                               PM Peak
             C side             D side             C side            D side
          Reserve    LOS     Reserve    LOS     Reserve   LOS     Reserve  LOS

nt out of
e street:    1021     A        1054      A         934     A         903     A

t from
n street:    1016     A        1024      A         951     A         863     A

u across
n street      573     A         590      A         385     B         350     B

t out of
e street      454     A         450      A         209     C         226     C
```

D-55

```
--------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:     C-1, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Border at Saratoga                       1990 No-Build
YEAR:     1990
================================================================================
    VOLUMES--AM
Approach:       Border Street SB           Border Street NB          Parking Lot Outbound          Saratoga Street WB
Movement:  Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:    54      187        9       14      119       33        8       17       14       43       10       46
pch:       59      187        9       15      119       33        9       19       15       47       11       51

                  RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:          5        5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------
    VOLUMES--PM
Approach:       Border Street SB           Border Street NB          Parking Lot Outbound          Saratoga Street WB
Movement:  Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:   102      182       44       44      218       31       31       42       83       40       72       79
pch:      112      182       44       48      218       31       34       46       91       44       79       87

                  RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:          5        5        5        5        6        6      6.5      6.5
================================================================================


                                  LOS SUMMARY
                      AM Peak                             PM Peak
                C side            D side            C side            D side
            Reserve    LOS    Reserve    LOS    Reserve   LOS    Reserve  LOS

Right out of
side street:    1012    A        1044    A         921    A         892   A

Left from
main street:    1007    A        1016    A         939    A         849   A

Thru across
main street      559    A         577    A         367    B         331   B

Left out of
side street      440    A         435    A         193    D         209   C
```

D-56

```
--------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:     C-1, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Border at Saratoga                     1990 Build
YEAR:     1990
================================================================================
   VOLUMES--AM
Approach:     Border Street SB          Border Street NB          Parking Lot Outbound          Saratoga Street WB
Movement:  Al        At        Ar      Bl        Bt        Br      Cl        Ct        Cr      Dl        Dt        Dr
Volume:    54        189       9       14        124       38      8         17        14      47        10        46
pch:       59        189       9       15        124       38      9         19        15      52        11        51

                     RT-C      RT-D    LT-B      LT-A      ST-C    ST-D      LT-C      LT-D
Crit. Gaps:          5         5       5         5         6       6         6.5       6.5
--------------------------------------------------------------------------------
   VOLUMES--PM
Approach:     Border Street SB          Border Street NB          Parking Lot Outbound          Saratoga Street WB
Movement:  Al        At        Ar      Bl        Bt        Br      Cl        Ct        Cr      Dl        Dt        Dr
Volume:    102       187       44      44        220       33      31        42        83      45        72        79
pch:       112       187       44      48        220       33      34        46        91      50        79        87

                     RT-C      LT-B    LT-C      LT-A      ST-C    ST-D      LT-C      LT-D
Crit. Gaps:          5         5       5         5         6       6         6.5       6.5
================================================================================


                              LOS SUMMARY
                   AM Peak                            PM Peak
             C side           D side           C side           D side
           Reserve  LOS     Reserve  LOS     Reserve  LOS     Reserve  LOS

Right out of
side street:  1010   A       1035     A        916     A        888     A

Left from
main street:  1004   A       1003     A        933     A        845     A

Thru across
main street    550   A        569     A        362     B        326     B

Left out of
side street    431   A        422     A        190     D        193     D
```

D-57

```
--------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:     C-2, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:   Meridian at Bennington/Porter                1986
YEAR:     1986
================================================================================
   VOLUMES--AM
Approach:    Meridian Street SB       Porter Street WB       Meridian Street NB      Bennington Street WB
Movement:  Al      At      Ar      Bl      Bt      Br      Cl      Ct      Cr      Dl      Dt      Dr
Volume:    30      268     403     22      40      19      221     99      54      257     182     64
pch:       33      268     403     24      40      19      243     109     59      283     200     70

                RT-C    RT-D    LT-B    LT-A    ST-C    ST-D    LT-C    LT-D
Crit. Gaps:        5       5       5       5       6       6     6.5     6.5
--------------------------------------------------------------------------------
   VOLUMES--PM
Approach:    Meridian Street SB       Porter Street WB       Meridian Street NB      Bennington Street WB
Movement:  Al      At      Ar      Bl      Bt      Br      Cl      Ct      Cr      Dl      Dt      Dr
Volume:    101     67      307     30      131     41      299     178     30      19      147     115
pch:       111     67      307     33      131     41      329     196     33      21      162     127

                RT-C    LT-B    LT-C    LT-A    ST-C    ST-D    LT-C    LT-D
Crit. Gaps:        5       5       5       5       6       6     6.5     6.5
================================================================================



                                LOS SUMMARY
                   AM Peak                             PM Peak
             C side            D side            C side           D side
         Reserve    LOS    Reserve    LOS    Reserve   LOS    Reserve   LOS

Right out of
side street:  687    A      1139       A       960     A        948     A

Left from
main street:  568   A       1163       A       800     A        939     A

Thru across
main street   351    B       153       D       270     C        226     C

Left out of
side street  -113    F      -100       F      -169     F        131     D
```

D-58

```
---------------------------------------------------------------------------------------------
:IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
---------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-2, NO-Build
ROJECT: Clippership Wharf, East Boston
OC'N:    Meridian at Bennington/Porter                  1990
EAR:      1990
=============================================================================================
   VOLUMES--AM
pproach:     Meridian Street SB          Porter Street WB         Meridian Street NB         Bennington Street WB
ovement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
olume:     22       279      428      23       40       20       222      103      65       287      189      67
ch:        24       279      428      25       40       20       244      113      72       316      208      74

                    RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
rit. Gaps:            5        5        5        5        6        6       6.5      6.5
---------------------------------------------------------------------------------------------
   VOLUMES--PM
pproach:     Meridian Street SB          Porter Street WB         Meridian Street NB         Bennington Street WB
ovement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
olume:     105      70       322      36       136      43       317      185      51       20       153      120
ch:        116      70       322      40       136      43       349      204      56       22       168      132

                    RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
rit. Gaps:            5        5        5        5        6        6       6.5      6.5
=============================================================================================



                                    LOS SUMMARY
                     AM Peak                             PM Peak
               C side           D side            C side           D side
           Reserve   LOS    Reserve   LOS     Reserve   LOS    Reserve  LOS

ight out of
ide street:    654     A       1134     A        925     A        936     A

eft from
ain street:    543     A       1171     A        776     A        926     A

hru across
ain street     337     B        132     D        239     C        197     D

eft out of
ide street    -131     F       -150     F       -210     F        104     D
```

D-59

```
-----------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
-----------------------------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:     C-2, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Meridian at Bennington/Porter                1990
YEAR:      1990                                        .
===============================================================================================
     VOLUMES--AM
Approach:    Meridian Street SB          Porter Street WB         Meridian Street NB        Bennington Street WB
Movement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      22      279      428       37       40       20      227      107       74      289      189       67
pch:         24      279      428       41       40       20      250      118       81      318      208       74

                   RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:           5        5        5        5        6        6      6.5      6.5
-----------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:    Meridian Street SB          Porter Street WB         Meridian Street NB        Bennington Street WB
Movement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:     105       70      327       76      136       43      318      187       54       24      153      120
pch:        116       70      327       84      136       43      350      206       59       26      168      132

                   RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:           5        5        5        5        6        6      6.5      6.5
===============================================================================================


                                       LOS SUMMARY
                         AM Peak                                PM Peak
                 C side           D side              C side           D side
               Reserve   LOS    Reserve   LOS      Reserve   LOS    Reserve   LOS

Right out of
side street:       645    A       1134     A          920     A         936     A

Left from
main street:       527    A       1171     A          727     A         926     A

Thru across
main street        314    B        118     D          193     D         160     D

Left out of
side street       -148    F       -167     F         -236     F          75     E
```

D-60

```
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-3, Existing
ROJECT: Clippership Wharf, East Boston
OC'N:    Bremen at Porter                          1986 Existing
EAR:      1986
====================================================================================
   VOLUMES--AM
pproach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
ovement:   Al       At        Ar      Bl       Bt        Br      Cl       Ct        Cr      Dl       Dt        Dr
olume:     74      175         0       2       13         0      45      100        22       7       40        29
ch:        81      175         0       2       13         0      50      110        24       8       44        32

                  RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
------------------------------------------------------------------------------------
   VOLUMES--PM
pproach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
ovement:   Al       At        Ar      Bl       Bt        Br      Cl       Ct        Cr      Dl       Dt        Dr
olume:     82      153         0      19      103        19      35      194        27       3       83        43
ch:        90      153         0      21      103        19      39      213        30       3       91        47

                  RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
====================================================================================



                                   LOS SUMMARY
                     AM Peak                                  PM Peak
               C side           D side              C side           D side
             Reserve   LOS    Reserve   LOS       Reserve   LOS    Reserve  LOS

ight out of
ide street:    1023     A       1229     A         1043     A       1078     A

eft from
ain street:    1045     A       1180     A         1052     A       1022     A

hru across
ain street      597     A        663     A          379     B        508     A

eft out of
ide street      489     A        451     A          335     B        257     C
```

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```
--------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:     C-3, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Bremen at Porter                        1990 NO-Build
YEAR:      1990
================================================================================
     VOLUMES--AM
Approach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
Movement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:     77      187        0        2       18        0       47      130       28        7       44       30
pch:        85      187        0        2       18        0       52      143       31        8       48       33

                 RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:         5        5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------
     VOLUMES--PM
Approach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
Movement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:     85      161        0       10      117       20       36      209       29        3       91       45
pch:        94      161        0       11      117       20       40      230       32        3      100       50

                 RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:         5        5        5        5        6        6      6.5      6.5
================================================================================



                                   LOS SUMMARY
                       AM Peak                             PM Peak
                  C side            D side            C side            D side
                Reserve   LOS    Reserve   LOS    Reserve   LOS    Reserve   LOS

Right out of
side street:      1001     A       1221     A       1032     A       1056     A

Left from
main street:      1030     A       1169     A       1053     A        999     A

Thru across
main street        542     A        637     A        348     B        486     A

Left out of
side street        462     A        388     B        312     B        231     B
```

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```
--------------------------------------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS—UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:       C-3, Build
ROJECT: Clippership Wharf, East Boston
OC'N:    Bremen at Porter                           1990 Build
EAR:      1990
============================================================================================
  VOLUMES—AM
pproach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
ovement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
olume:      77       190      0        2        27       0        47       130      32       7        44       43
ch:         85       190      0        2        27       0        52       143      35       8        48       47

                     RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
rit. Gaps:              5        5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------------------
  VOLUMES—PM
pproach:      Bremen Street SB          Bremen Street NB          Porter Street EB          Porter Street WB
ovement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
olume:      92       167      0        20       121      10       36       214      34       3        91       50
ch:        101       167      0        22       121      10       40       235      37       3        100      55

                     RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
rit. Gaps:              5        5        5        5        6        6      6.5      6.5
============================================================================================


                                   LOS SUMMARY
                      AM Peak                               PM Peak
               C side              D side              C side             D side
            Reserve    LOS     Reserve    LOS      Reserve    LOS     Reserve    LOS

ight out of
ide street:     934     A        1194      A         1019      A        1052      A

eft from
ain street:    1027     A        1156      A         1034      A        1000      A

hru across
ain street      531     A         626      A          324      B         463      A

eft out of
ide street      438     A         376      B          293      C         209      C
```

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```
--------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
DATE:     December 1987            ALTERNATIVE:      C-4, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:    Maverick at Meridian/Chelsea                1986 Existing
YEAR:      1986
============================================================================================
     VOLUMES--AM
Approach:    Meridian Street SB        Maverick Street WB        Meridian Street NB        Chelsea Street SB
Movement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      9      209       23       88      192       86       25      259       72        0       90       26
pcn:        10      209       23       97      192       86       28      285       79        0       99       29

                 RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:         5        5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:    Meridian Street SB        Maverick Street WB        Meridian Street NB        Chelsea Street SB
Movement:   Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:     12      246       44       83      227      101       20      240      127        0      127       65
pcn:        13      246       44       91      227      101       22      264      140        0      140       72

                 RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:         5        5        5        5        6        6      6.5      6.5
============================================================================================



                                        LOS SUMMARY
                          AM Peak                                 PM Peak
                   C side            D side            C side            D side
                Reserve   LOS     Reserve   LOS     Reserve   LOS     Reserve   LOS

Right out of
side street:       914     A         948     A         801     A         858     A

Left from
main street:       883     A         920     A         826     A         865     A

Thru across
main street        148     D         353     B         115     D         254     C

Left out of
side street        228     C          88     E         140     D          61     E
```

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-----------------------------------------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
-----------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-4, NO-Build
ROJECT: Clippership Wharf, East Boston
OC'N:    Maverick at Meridian/Chelsea                  1990 NO-Build
EAR:       1990
===============================================================================================
   VOLUMES--AM
pproach:     Meridian Street SB          Maverick Street WB          Meridian Street NB           Chelsea Street SB
ovement:   Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:      9       247        24        92       210        90        26       273        75         0       104        27
ch:        10       247        24       101       210        90        29       300        83         0       114        30

                    RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:             5         5         5         5         6         6       6.5       6.5
-----------------------------------------------------------------------------------------------
   VOLUMES--PM
pproach:     Meridian Street SB          Maverick Street WB          Meridian Street NB           Chelsea Street SB
ovement:   Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:     12       263        46        86       271       109        20       253       127         0       137        67
ch:        13       263        46        95       271       109        22       278       140         0       151        74

                    RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:             5         5         5         5         6         6       6.5       6.5
===============================================================================================



                                          LOS SUMMARY
                          AM Peak                                 PM Peak
                    C side            D side            C side            D side
                 Reserve   LOS     Reserve   LOS     Reserve   LOS     Reserve   LOS

ight out of
ide street:          867     A         925     A         781     A         806     A

eft from
ain street:          836     A         897     A         802     A         814     A

hru across
ain street            93     E         298     C          62     E         205     C

eft out of
side street          182     D          56     E         105     D          34     E
```

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```
--------------------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------------------
DATE:     December 1987           ALTERNATIVE:      C-4, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Maverick at Meridian/Chelsea                 1990 Build
YEAR:      1990
========================================================================================================
     VOLUMES--AM
Approach:    Meridian Street SB          Maverick Street WB          Meridian Street NB          Chelsea Street SB
Movement:    Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
Volume:       9       250        24        92       210        99        26       289        75         0       111        27
pch:         10       250        24       101       210        99        29       318        83         0       122        30

                    RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
Crit. Gaps:            5         5         5         5         6         6       6.5       6.5
--------------------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:    Meridian Street SB          Maverick Street WB          Meridian Street NB          Chelsea Street SB
Movement:    Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
Volume:      12       263        46        86       271       113        20       258       127         0       157        67
pch:         13       263        46        95       271       113        22       284       140         0       173        74

                    RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
Crit. Gaps:            5         5         5         5         6         6       6.5       6.5
========================================================================================================


                                        LOS SUMMARY
                         AM Peak                                  PM Peak
                    C side            D side            C side            D side
                 Reserve   LOS     Reserve   LOS     Reserve   LOS     Reserve   LOS

Right out of
side street:        864     A         920     A         781     A         804     A

Left from
main street:        833     A         887     A         802     A         810     A

Thru across
main street          69     E         285     C          54     E         182     D

Left out of
side street         171     D          41     E          88     E          30     E
```

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```
-------------------------------------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
-------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-5, Existing
ROJECT: Clippership Wharf, East Boston
OC'N:    Maverick at Orleans                       1986 Existing
EAR:      1986
===========================================================================================
  VOLUMES--AM
pproach:     Maverick Street WB          Maverick Street EB          Orleans Street SB          Orleans Street NB
ovement:   Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:     23        296       3         1         1         1         0         15        13        49        48        0
ch:        25        296       3         1         1         1         0         17        14        54        53        0
                              (1's placed here to eliminate division by zero)
                     RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6         6.5       6.5
-------------------------------------------------------------------------------------------
  VOLUMES--PM
pproach:     Maverick Street WB          Maverick Street EB          Orleans Street SB          Orleans Street NB
ovement:   Al        At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:     26        323       14        1         1         1         0         9         36        26        60        0
ch:        29        323       14        1         1         1         0         10        40        29        66        0
                              (1's placed here to eliminate division by zero)
                     RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6         6.5       6.5
===========================================================================================



                                       LOS SUMMARY
                      AM Peak                                PM Peak
                C side          D side              C side          D side
             Reserve   LOS    Reserve   LOS      Reserve   LOS    Reserve  LOS

ight out of
ide street:     895     A      1278      A          836     A       1278     A

eft from
ain street:     907     A      1252      A          868     A       1248     A

hru across
ain street      658     A       621      A          630     A        569     A

eft out of
ide street      529     A       508      A          481     A        476     A
```

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```
---------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
---------------------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:      C-5, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Maverick at Orleans                        1990 NO-Build
YEAR:     1990
=============================================================================================
    VOLUMES--AM
Approach:    Maverick Street WB          Maverick Street EB         Orleans Street SB          Orleans Street NB
Movement:   Al      At      Ar      Bl      Bt      Br      Cl      Ct      Cr      Dl      Dt      Dr
Volume:     24     308       3       1       1       1       0      42      13      66      52       0
pch:        26     308       3       1       1       1       0      46      14      73      57       0
                              (1's placed here to eliminate division by zero)
                  RT-C    RT-D    LT-B    LT-A    ST-C    ST-D    LT-C    LT-D
Crit. Gaps:          5       5       5       5       6       6     6.5     6.5
---------------------------------------------------------------------------------------------
    VOLUMES--PM
Approach:    Maverick Street WB          Maverick Street EB         Orleans Street SB          Orleans Street NB
Movement:   Al      At      Ar      Bl      Bt      Br      Cl      Ct      Cr      Dl      Dt      Dr
Volume:     27     336      15       1       1       1       0      16      37      76      68       0
pch:        30     336      15       1       1       1       0      18      41      84      75       0
                              (1's placed here to eliminate division by zero)
                  RT-C    LT-B    LT-C    LT-A    ST-C    ST-D    LT-C    LT-D
Crit. Gaps:          5       5       5       5       6       6     6.5     6.5
=============================================================================================



                                      LOS SUMMARY
                        AM Peak                             PM Peak
                  C side          D side              C side          D side
               Reserve   LOS   Reserve    LOS      Reserve   LOS   Reserve   LOS

Right out of
side street:       883    A      1278      A          821    A      1278      A

Left from
main street:       894    A      1251      A          854    A      1247      A

Thru across
main street        616    A       605      A          610    A       546      A

Left out of
side street        513    A       439      A          458    A       399      B
```

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```
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
-----------------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:      C-5, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Maverick at Orleans                        1990 Build
YEAR:     1990
=========================================================================================
    VOLUMES--AM
Approach:     Maverick Street WB          Maverick Street EB         Orleans Street SB          Orleans Street NB
Movement:     Al       At       Ar        Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:       24       308      3         1        1        1        0        42       13       66       65       0
pch:          26       308      3         1        1        1        0        46       14       73       72       0
                                    (1's placed here to eliminate division by zero)
                       RT-C     RT-D      LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:            5        5         5        5        6        6        6.5      6.5
-----------------------------------------------------------------------------------------
    VOLUMES--PM
Approach:     Maverick Street WB          Maverick Street EB         Orleans Street SB          Orleans Street NB
Movement:     Al       At       Ar        Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:       27       336      15        1        1        1        0        26       37       76       73       0
pch:          30       336      15        1        1        1        0        29       41       84       80       0
                                    (1's placed here to eliminate division by zero)
                       RT-C     LT-B      LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:            5        5         5        5        6        6        6.5      6.5
=========================================================================================


                                   LOS SUMMARY
                        AM Peak                            PM Peak
                C side             D side           C side            D side
             Reserve    LOS     Reserve    LOS    Reserve   LOS     Reserve   LOS

Right out of
side street:     883     A        1278      A       821     A        1278      A

Left from
main street:     894     A        1251      A       854     A        1247      A

Thru across
main street      616     A         590      A       533     A         541      A

Left out of
side street      432     A         439      A       451     A         386      B
```

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```
--------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      C-6, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N:    Maverick at Cottage                      1986
YEAR:       1986
============================================================================================
     VOLUMES--AM
Approach:     Maverick Street WB        Maverick Street EB        Cottage Street SB        Cottage Street NB
Movement:   Al       At       Ar      Bl       Bt       Br      Cl       Ct       Cr      Dl       Dt       Dr
Volume:     17      264        0       1        1        1       0       30       30       1        1        1
pch:        19      264        0       1        1        1       0       33       33       1        1        1
                              (1's placed here to eliminate division by zero)               (ditto)
                  RT-C     RT-D    LT-B     LT-A     ST-C    ST-D     LT-C     LT-D
Crit. Gaps:          5        5       5        5        6       6      6.5      6.5
--------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:     Maverick Street WB        Maverick Street EB        Cottage Street SB        Cottage Street NB
Movement:   Al       At       Ar      Bl       Bt       Br      Cl       Ct       Cr      Dl       Dt       Dr
Volume:     22      292        0       1        1        1       0       61       47       1        1        1
pch:        24      292        0       1        1        1       0       67       52       1        1        1
                              (1's placed here to eliminate division by zero)               (ditto)
                  RT-C     LT-B    LT-C     LT-A     ST-C    ST-D     LT-C     LT-D
Crit. Gaps:          5        5       5        5        6       6      6.5      6.5
============================================================================================


                                      LOS SUMMARY
                        AM Peak                           PM Peak
                  C side          D side            C side          D side
               Reserve   LOS   Reserve   LOS     Reserve   LOS   Reserve  LOS

Right out of
side street:      912     A      1277     A        863     A      1277     A

Left from
main street:      944     A      1258     A        914     A      1253     A

Thru across
main street       681     A       714     A        614     A       681     A

Left out of
side street       636     A       554     A        604     A       462     A
```

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```
--------------------------------------------------------------------------------------------
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
ATE:     December 1987           ALTERNATIVE:       C-6, NO-Build
ROJECT: Clippership Wharf, East Boston
OC'N:    Maverick at Cottage                             1990
EAR:      1990
============================================================================================
  VOLUMES--AM
pproach:     Maverick Street WB          Maverick Street EB          Cottage Street SB          Cottage Street NB
ovement:  Al         At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:    18        275         0         1         1         1         0        51        31         1         1         1
ch:       20        275         0         1         1         1         0        56        34         1         1         1
                                   (1's placed here to eliminate division by zero)               (ditto)
                   RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:            5         5         5         5         6         6       6.5       6.5
--------------------------------------------------------------------------------------------
  VOLUMES--PM
pproach:     Maverick Street WB          Maverick Street EB          Cottage Street SB          Cottage Street NB
ovement:  Al         At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:    23        304         0         1         1         1         0        63        49         1         1         1
ch:       25        304         0         1         1         1         0        69        54         1         1         1
                                   (1's placed here to eliminate division by zero)               (ditto)
                   RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:            5         5         5         5         6         6       6.5       6.5
============================================================================================



                                    LOS SUMMARY
                        AM Peak                               PM Peak
                 C side            D side            C side            D side
              Reserve   LOS     Reserve   LOS     Reserve   LOS     Reserve   LOS

ight out of
ide street:       899     A        1277     A         848     A        1277     A

eft from
ain street:       932     A        1257     A         901     A        1252     A

hru across
ain street        646     A         702     A         600     A         668     A

eft out of
ide street        624     A         512     A         592     A         447     A
```

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```
--------------------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:      C-6, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Maverick at Cottage                         1990
YEAR:      1990
========================================================================================================
     VOLUMES--AM
Approach:     Maverick Street WB          Maverick Street EB          Cottage Street SB          Cottage Street NB
Movement:     Al       At        Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:       18       275       0        1        1        1        0        51       31       1        1        1
pch:          20       275       0        1        1        1        0        56       34       1        1        1
                                   (1's placed here to eliminate division by zero)                (ditto)
                       RT-C      RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:              5         5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:     Maverick Street WB          Maverick Street EB          Cottage Street SB          Cottage Street NB
Movement:     Al       At        Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
              23       304       0        1        1        1        0        63       49       1        1        1
pch:          25       304       0        1        1        1        0        69       54       1        1        1
                                   (1's placed here to eliminate division by zero)                (ditto)
                       RT-C      LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:              5         5        5        5        6        6      6.5      6.5
========================================================================================================



                                          LOS SUMMARY
                          AM Peak                             PM Peak
                    C side           D side           C side           D side
                 Reserve   LOS    Reserve   LOS    Reserve   LOS    Reserve  LOS

Right out of
side street:        899     A       1277     A        848     A       1277     A

Left from
main street:        932     A       1257     A        901     A       1252     A

Thru across
main street         646     A        702     A        600     A        668     A

Left out of
side street         624     A        512     A        592     A        447     A
```

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```
------------------------------------------------------------------------------------------
:IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-7, Existing
ROJECT: Clippership Wharf, East Boston
.OC'N:   Sumner at Bremen                          1986
EAR:      1986
==========================================================================================
   VOLUMES--AM
pproach:       Sumner Street EB           Sumner Street WB          Bremen Street NB          Bremen Street SB
ovement:  Al        At        Ar       Bl        Bt        Br       Cl        Ct        Cr       Dl        Dt        Dr
olume:    25       212        33        1        97        12       22        43        14       47        15        40
ch:       28       212        33        1        97        12       24        47        15       52        17        44

                  RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
:rit. Gaps:          5         5         5         5         6         6       6.5       6.5
------------------------------------------------------------------------------------------
   VOLUMES--PM
pproach:       Sumner Street EB           Sumner Street WB          Bremen Street NB          Bremen Street SB
ovement:  Al        At        Ar       Bl        Bt        Br       Cl        Ct        Cr       Dl        Dt        Dr
olume:    23       303        29        1        71        12       21        46        30       78         8        15
ch:       25       303        29        1        71        12       23        51        33       86         9        17

                  RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
:rit. Gaps:          5         5         5         5         6         6       6.5       6.5
==========================================================================================


                                       LOS SUMMARY
                         AM Peak                                PM Peak
                 C side             D side             C side             D side
              Reserve   LOS      Reserve   LOS      Reserve   LOS      Reserve   LOS

ight out of
.ide street:      969    A         1093    A          855    A         1155     A

.eft from
ain street:       965    A         1101    A          873    A         1138     A

hru across
ain street        589    A          610    A          535    A          570     A

.eft out of
ide street        473    A          428    A          467    A          332     B
```

D-73

```
-------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
-------------------------------------------------------------------------------------
DATE:    December 1987        ALTERNATIVE:      C-7, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Sumner at Bremen                           1990
YEAR:     1990
=====================================================================================
    VOLUMES--AM
Approach:       Sumner Street EB           Sumner Street WB          Bremen Street NB            Bremen Street SB
Movement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      26      270       34        1      105       12       23       44       15       59       16       42
pch:         29      270       34        1      105       12       25       48       17       65       18       46

                   RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:           5        5        5        5        6        6      6.5      6.5
-------------------------------------------------------------------------------------
    VOLUMES--PM
Approach:       Sumner Street EB           Sumner Street WB          Bremen Street NB            Bremen Street SB
Movement:    Al       At       Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      24      327       30        2       87       12       22       48       31       84        8       16
pch:         26      327       30        2       87       12       24       53       34       92        9       18

                   RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:           5        5        5        5        6        6      6.5      6.5
=====================================================================================



                                   LOS SUMMARY
                      AM Peak                                PM Peak
                C side           D side             C side           D side
             Reserve   LOS    Reserve   LOS      Reserve   LOS    Reserve  LOS

Right out of
side street:     903    A       1081     A          830    A        1132    A

Left from
main street:     901    A       1090     A          847    A        1116    A

Thru across
main street      531    A        552     A          499    A         536    A

Left out of
side street      420    A        363     B          434    A         294    C
```

D-74

```
------------------------------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
------------------------------------------------------------------------------------------
ITE:     December 1987           ALTERNATIVE:       C-7, Build
OJECT: Clippership Wharf, East Boston
IC'N:    Summer at Bremen                                   1930
AR:       1990
==========================================================================================
  VOLUMES--AM
proach:      Summer Street EB            Summer Street WB           Bremen Street NB              Bremen Street SB
vement:     Al         At        Ar        Bl        Bt       Br        Cl        Ct       Cr        Dl        Dt       Dr
lume:       26        270        42         1       105       12        32        62       28        59        23       42
h:          29        270        42         1       105       12        35        68       31        65        25       46

                  RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
it. Gaps:            5         5         5         5         6         6       6.5       6.5
------------------------------------------------------------------------------------------
  VOLUMES--PM
proach:      Summer Street EB            Summer Street WB           Bremen Street NB              Bremen Street SB
vement:     Al         At        Ar        Bl        Bt       Br        Cl        Ct       Cr        Dl        Dt       Dr
lume:       24        327        55        12        87       12        25        56       36        81        25       16
h:          26        327        55        13        87       12        28        62       40        89        28       18

                  RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
it. Gaps:            5         5         5         5         6         6       6.5       6.5
==========================================================================================



                                      LOS SUMMARY
                     AM Peak                                  PM Peak
              C side             D side              C side             D side
            Reserve   LOS     Reserve    LOS      Reserve   LOS      Reserve  LOS

ght out of
de street:    885      A        1081      A         811      A        1132     A

eft from
ain street:   893      A        1090      A         812      A        1116     A

hru across
ain street    508      A         539      A         470      A         488     A

eft out of
ide street    400      A         323      B         389      B         259     C
```

D-75

CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)

DATE: December 1987 ALTERNATIVE: C-8, Existing
PROJECT: Clippership Wharf, East Boston
LOC'N: Sumner at Orleans 1986 Existing
YEAR: 1986

VOLUMES--AM

Approach:	Sumner Street EB			Sumner Street WB			Orleans Street NB			Orleans Street SB		
Movement:	Al	At	Ar	Bl	Bt	Br	Cl	Ct	Cr	Dl	Dt	Dr
Volume:	49	162	23	1	1	1	111	64	14	26	0	4
pch:	54	162	23	1	1	1	122	70	15	29	0	4

(1's placed here to eliminate division by zero)

	RT-C	RT-D	LT-B	LT-A	ST-C	ST-D	LT-C	LT-D
Crit. Gaps:	5	5	5	5	6	6	6.5	6.5

VOLUMES--PM

Approach:	Sumner Street EB			Sumner Street WB			Orleans Street NB			Orleans Street SB		
Movement:	Al	At	Ar	Bl	Bt	Br	Cl	Ct	Cr	Dl	Dt	Dr
Volume:	74	308	29	1	1	1	83	55	32	9	10	9
pch:	81	308	29	1	1	1	91	61	35	10	11	10

(1's placed here to eliminate division by zero)

	RT-C	LT-B	LT-C	LT-A	ST-C	ST-D	LT-C	LT-D
Crit. Gaps:	5	5	5	5	6	6	6.5	6.5

LOS SUMMARY

	AM Peak				PM Peak			
	C side		D side		C side		D side	
	Reserve	LOS	Reserve	LOS	Reserve	LOS	Reserve	LOS
Right out of side street:	1033	A	1274	A	848	A	1268	A
Left from main street:	1034	A	1223	A	868	A	1196	A
Thru across main street	689	A	748	A	526	A	565	A
Left out of side street	556	A	526	A	405	A	393	B

D-76

```
----------------------------------------------------------------------------------------------------
RCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
----------------------------------------------------------------------------------------------------
TE:     December 1987          ALTERNATIVE:       C-8, NO-Build
OJECT: Clippership Wharf, East Boston
C'N:    Sumner at Orleans                          1990 NO-Build
AR:      1990
====================================================================================================
   VOLUMES--AM
proach:      Sumner Street EB           Sumner Street WB           Orleans Street NB          Orleans Street SB
vement:   Al        At        Ar       Bl        Bt        Br       Cl        Ct        Cr       Dl        Dt        Dr
lume:     51       168        84        1         1         1      114        84        15       27        26         4
h:        56       168        84        1         1         1      125        92        17       30        29         4
                              (1's placed here to eliminate division by zero)
                RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
it. Gaps:          5         5         5         5         6         6       6.5       6.5
----------------------------------------------------------------------------------------------------
   VOLUMES--PM
proach:      Sumner Street EB           Sumner Street WB           Orleans Street NB          Orleans Street SB
vement:   Al        At        Ar       Bl        Bt        Br       Cl        Ct        Cr       Dl        Dt        Dr
lume:     74       320        45        1         1         1       98       111        33        9        17         9
h:        81       320        45        1         1         1      108       122        36       10        19        10
                              (1's placed here to eliminate division by zero)
                RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
it. Gaps:          5         5         5         5         6         6       6.5       6.5
====================================================================================================



                                        LOS SUMMARY
                       AM Peak                                PM Peak
                C side            D side             C side            D side
             Reserve   LOS    Reserve   LOS      Reserve   LOS     Reserve   LOS

ight out of
ide street:      988     A       1274     A          827     A        1268      A

eft from
ain street:      957     A       1221     A          840     A        1196      A

hru across
ain street       627     A        650     A          449     A         535      A

eft out of
ide street       474     A        438     A          363     B         308      B
```

D-77

```
--------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
DATE:     December 1987          ALTERNATIVE:     C-8, Build
PROJECT: Clippership Wharf, East Boston
LOC'N:    Sumner at Orleans                        1990 Build
YEAR:      1990
============================================================================================
     VOLUMES--AM
Approach:       Sumner Street EB             Sumner Street WB            Orleans Street NB             Orleans Street SB
Movement:   Al         At        Ar       Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
Volume:     64        168        84        1         1         1       114        84        15        27        26         4
pch:        70        168        84        1         1         1       125        92        17        30        29         4
                                    (1's placed here to eliminate division by zero)
                     RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
Crit. Gaps:             5         5         5         5         6         6       6.5       6.5
--------------------------------------------------------------------------------------------
     VOLUMES--PM
Approach:       Sumner Street EB             Sumner Street WB            Orleans Street NB             Orleans Street SB
Movement:   Al         At        Ar       Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
Volume:     82        320        45        1         1         1        98       111        33         9        17        19
pch:        90        320        45        1         1         1       108       122        36        10        19        21
                                    (1's placed here to eliminate division by zero)
                     RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
Crit. Gaps:             5         5         5         5         6         6       6.5       6.5
============================================================================================


                                    LOS SUMMARY
                          AM Peak                              PM Peak
                   C side            D side              C side            D side
                 Reserve    LOS    Reserve    LOS      Reserve    LOS    Reserve   LOS

Right out of
side street:         988     A       1274      A          827     A       1257      A

Left from
main street:         957     A       1207      A          840     A       1187      A

Thru across
main street          608     A        632      A          439     A        525      A

Left out of
side street          457     A        424      A          345     B        301      B
```

D-78

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IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:     C-9, Existing
ROJECT: Clippership Wharf, East Boston
OC'N:    Sumner at Cottage                        1986 Existing
EAR:      1986
==========================================================================================
    VOLUMES--AM
pproach:       Sumner Street EB             Sumner Street WB        Cottage Street NB          Cottage Street SB
ovement:   Al        At         Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:      0       178         45         1         1         1         1         1         1        19        20         0
ch:         0       178         45         1         1         1         1         1         1        21        22         0
                                 (1's placed here to eliminate division by zero)
                  RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
------------------------------------------------------------------------------------------
    VOLUMES--PM
pproach:       Sumner Street EB             Sumner Street WB        Cottage Street NB          Cottage Street SB
ovement:   Al        At         Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:      0       297         52         1         1         1         1         1         1        22        26         0
ch:         0       297         52         1         1         1         1         1         1        24        29         0
                                 (1's placed here to eliminate division by zero)
                  RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
==========================================================================================



                                        LOS SUMMARY
                          AM Peak                                PM Peak
                   C side           D side              C side           D side
               Reserve    LOS    Reserve    LOS     Reserve    LOS    Reserve   LOS

ight out of
ide street:       1015      A       1278      A         882      A       1278     A

eft from
ain street:        989      A       1277      A         856      A       1277     A

hru across
ain street         804      A        759      A         679      A        628     A

eft out of
ide street         692      A        679      A         565      A        556     A
```

D-79

```
--------------------------------------------------------------------------------------------
CIRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
DATE:    December 1987          ALTERNATIVE:      C-9, NO-Build
PROJECT: Clippership Wharf, East Boston
LOC'N:   Sumner at Cottage                          1990 NO-Build
YEAR:     1990
============================================================================================
    VOLUMES--AM
Approach:      Sumner Street EB             Sumner Street WB          Cottage Street NB           Cottage Street SB
Movement:   Al       At      Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      0      185      47        1        1        1        1        1        1       20       31        0
pch:         0      185      47        1        1        1        1        1        1       22       34        0
                                   (1's placed here to eliminate division by zero)
                  RT-C     RT-D     LT-B     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:          5        5        5        5        6        6      6.5      6.5
--------------------------------------------------------------------------------------------
    VOLUMES--PM
Approach:      Sumner Street EB             Sumner Street WB          Cottage Street NB           Cottage Street SB
Movement:   Al       At      Ar       Bl       Bt       Br       Cl       Ct       Cr       Dl       Dt       Dr
Volume:      0      309      54        1        1        1        1        1        1       23       27        0
pch:         0      309      54        1        1        1        1        1        1       25       30        0
                                   (1's placed here to eliminate division by zero)
                  RT-C     LT-B     LT-C     LT-A     ST-C     ST-D     LT-C     LT-D
Crit. Gaps:          5        5        5        5        6        6      6.5      6.5
============================================================================================


                                    LOS SUMMARY
                       AM Peak                             PM Peak
                  C side          D side             C side          D side
              Reserve   LOS    Reserve   LOS     Reserve   LOS    Reserve  LOS

Right out of
side street:     1006    A      1278     A        869     A       1278     A

Left from
main street:      979    A      1277     A        842     A       1277     A

Thru across
main street       795    A       738     A        667     A        614     A

Left out of
side street       665    A       669     A        552     A        543     A
```

D-8

```
IRCULAR 212 CAPACITY ANALYSIS--UNSIGNALLIZED INTERSECTIONS (4-WAY)
--------------------------------------------------------------------------------------------
ATE:     December 1987          ALTERNATIVE:      C-9, Build
ROJECT: Clippership Wharf, East Boston
OC'N:   Sumner at Cottage                          1990 Build
EAR:     1990
============================================================================================
  VOLUMES--AM
pproach:      Sumner Street EB            Sumner Street WB          Cottage Street NB         Cottage Street SB
ovement:   Al       At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
Volume:     0      185        47         1         1         1         1         1         1        20        31         0
ch:         0      185        47         1         1         1         1         1         1        22        34         0
                                  (1's placed here to eliminate division by zero)
                  RT-C      RT-D      LT-B      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
--------------------------------------------------------------------------------------------
  VOLUMES--PM
pproach:      Sumner Street EB            Sumner Street WB          Cottage Street NB         Cottage Street SB
ovement:   Al       At        Ar        Bl        Bt        Br        Cl        Ct        Cr        Dl        Dt        Dr
olume:      0      309        54         1         1         1         1         1         1        23        27         0
ch:         0      309        54         1         1         1         1         1         1        25        30         0
                                  (1's placed here to eliminate division by zero)
                  RT-C      LT-B      LT-C      LT-A      ST-C      ST-D      LT-C      LT-D
rit. Gaps:           5         5         5         5         6         6       6.5       6.5
============================================================================================


                                         LOS SUMMARY
                        AM Peak                                PM Peak
                  C side            D side              C side            D side
               Reserve   LOS     Reserve   LOS       Reserve   LOS     Reserve   LOS

ight out of
ide street:       1006     A        1278     A          869     A        1278     A

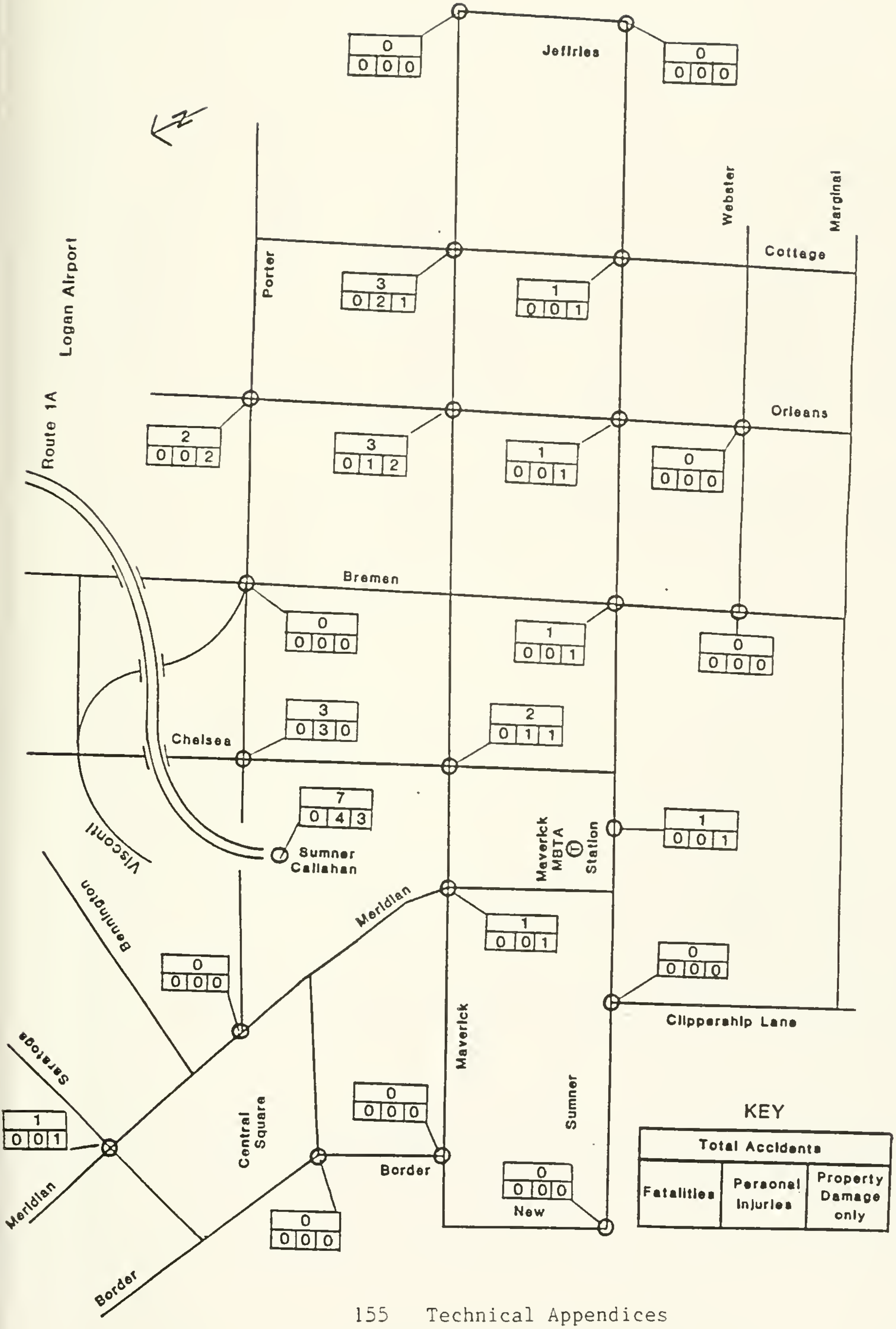
eft from
ain street:        979     A        1277     A          842     A        1277     A

Thru across
ain street         795     A         738     A          667     A         614     A

eft out of
ide street         665     A         669     A          552     A         543     A
```

E. Accident Data

E-1


N
Jeffries
Webster
Marginal
Cottage
Porter
Logan Airport
Route 1A
Orleans
Bremen
Chelsea
Visconti
Sumner Callahan
Bennington
Meridian
Maverick MBTA Station
Maverick
Sumner
Clippership Lane
Saratoga
Meridian
Central Square
Border
New
Border
0 | 0 0 0
0 | 0 0 0
3 | 0 2 1
1 | 0 0 1
2 | 0 0 2
3 | 0 1 2
1 | 0 0 1
0 | 0 0 0
0 | 0 0 0
1 | 0 0 1
0 | 0 0 0
3 | 0 3 0
2 | 0 1 1
7 | 0 4 3
1 | 0 0 1
1 | 0 0 1
0 | 0 0 0
0 | 0 0 0
1 | 0 0 1
0 | 0 0 0
0 | 0 0 0
0 | 0 0 0
KEY
Total Accidents
Fatalities
Personal Injuries
Property Damage only

15

E. BOSTON

SEGAL DISARCINA ASSo.

E-2

GLOSSARY FOR TRAFFIC ACCIDENT REPORT

```
TYPE = TYPE OF ACCIDENT

    F          = FATAL ACCIDENT
    I          = INJURY ACCIDENT
    P          = PROPERTY DAMAGE ONLY ACCIDENT

COLL WITH = COLLISION WITH

    PEDEST     = PEDESTRIAN
    MV/TRAF    = MOTOR VEHICLE IN TRAFFIC
    MV/PRKD    = MOTOR VEHICLE PARKED
    RR-TR      = RAILROAD TRAIN
    ROR/HFO    = RAN OFF ROAD / HIT FIXED OBJECT
    BICYCLE    = BICYCLE
    OVTRND     = OVERTURNED IN ROAD
    ROR/NC     = RAN OFF ROADWAY / NON COLLISION
    HFO/SSI    = HIT FIXED OBJECT ON SHOULDER, SIDEWALK
                 OR ISLAND
    OTHER      = OTHER THAN ABOVE
    NO SPEC    = NOT SPECIFIED ON ACCIDENT REPORT

COLL TYPE = COLLISION TYPE

    REAR       = REAR END
    ANGL       = ANGLE
    HEAD       = HEAD ON
    OTHR       = OTHER THAN ABOVE

COLLISION MOTIONS FOR VEH1 VEH2 VEH3

    RT TURN    = MAKING RIGHT TURN
    LT TURN    = MAKING LEFT TURN
    U TURN     = MAKING U TURN
    STRAGHT    = GOING STRAIGHT AHEAD
    PASS/RT    = PASSING ON RIGHT
    PASS/LT    = PASSING ON LEFT
    STOP SG    = STOP SIGN
    SKIDDING   = SKIDDING
    SLOWING    = SLOWING OR STOPPING
    XD MEDN    = CROSSING MEDIAN STRIP
    NO DRIV    = DRIVERLESS MOVING VEHICLE
    BACKING    = BACKING
    STRT/TR    = STARTING IN TRAFFIC
    STRT/PK    = STARTING FROM PARKED POSITION
    PARKED     = PARKED
    STALLED    = STALLED OR DISABLED
    STLD/FL    = STALLED OR DISABLED WITH FLASHER ON
    PARKING    = IN PROCESS OF PARKING
    ALL/DR     = ENTERING OR EXITING ALLEY OR DRIVEWAY
    OTHER      = OTHER THAN ABOVE
    NO SPC     = NOT SPECIFIED ON ACCIDENT REPORT

PEDESTRIAN ACTION

    AT INTER   = AT INTERSECTION
    W/300 FEET = WITHIN 300 FEET OF INTERSECTION
    M/300 FEET = MORE THAN 300 FEET FROM INTERSECTION
    WLK W/TRAF = WALKING IN STREET WITH TRAFFIC
```

```
    WLK A/TRAF = WALKING IN STREET AGAINST TRAFFIC
    STDN IN ST = STANDING IN STREET
    ON/OFF VEH = GETTING ON/OFF VEHICLE
    WRK ON VEH = WORKING ON VEHICLE
    WRKG IN ST = WORKING IN STREET
    PLYG IN ST = PLAYING IN STREET
    NOT IN ST  = NOT IN STREET
    OTHER      = OTHER THAN ABOVE
    NO SPEC    = NOT SPECIFIED ON ACCIDENT REPORT

VEHICLE ACTION

    ENT MEDN   = ENTERED MEDIAN
    XD MEDIAN  = CROSSED MEDIAN
    HIT MEDN   = HIT MEDIAN BARRIER
    HIT GRD    = HIT GUARD RAIL
    HIT CURB   = HIT CURBING
    HIT ABUT   = HIT ABUTMENT
    HIT SIGN   = HIT SIGNPOST
    HIT U/L    = HIT UTILITY OR LIGHT POLE
    HIT TREE   = HIT TREE
    EMBANKMENT = EMBANKMENT
    DITCH      = DITCH
    ROCK LEDG  = ROCK LEDGE
    STON WALL  = STONE WALL
    OTHR POST  = OTHER POST
    BR RAIL    = BRIDGE RAIL
    NO SPEC    = NOT SPECIFIED ON ACCIDENT REPORT

TRAFFIC CONTROL

    STOP       = STOP SIGN
    YIELD      = YIELD SIGN
    WARNING    = WARNING SIGN
    SIGNAL     = SIGNAL LIGHT
    OFF/FLG    = OFFICER OR FLAGMAN
    RR GATE    = RAILROAD CROSSING GATE
    RR AUTO    = RAILROAD AUTOMATIC SIGNAL
    NOT WRK    = CONTROL DEVICE NOT WORKING
    NOT TCD    = NO CONTROL PRESENT

LIGHT

    DAYLGT     = DAYLIGHT
    DWN/DSK    = DAWN OR DUSK
    DRK-LGT    = DARKNESS - ROAD LIGHTED
    NL-LGTS    = DARKNESS - ROAD UNLIGHTED
    NO SPEC    = NOT SPECIFIED ON ACCIDENT REPORT

ROADWAY          = ROAD CONDITION

    NO DFCT    = NO DEFECTS
    [illegible] = HOLES, RUTS, BUMPS
    DEBRIS     = FOREIGN MATTER ON SURFACE
    BAD SHL    = DEFECTIVE SHOULDER
    CONSTRC    = ROAD UNDER CONSTRUCTION
    OTHER      = OTHER THAN ABOVE
    NO SPEC    = NOT SPECIFIED ON ACCIDENT REPORT
```

MERIDIAN @ Saratoga

```
    BOSTON                       N  N  K                      INTERSECTION AT C1-4223 AND C2-4239
                                 U  U  I
                   T          H  .  .  L
                   Y          U  V  I  L               COLLISION MOTIONS                                                                      ENVIRONMENTAL CONDITIONS
 LOC CASE          P          U  E  N  E  COLL    COLL ************************  PEDESTRIAN  VEHICLE  TRAFFIC  ****************************
 NO.  NO.          E DATE     R  H  J  D  WITH    TYPE  VEH 1    VEH 2    VEH 3     ACTION    ACTION  CONTROL  LIGHT   WEATH SURF ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  *******  *******  *******  ********** ********* *******  ******* ***** **** *******

                                                   PA. CAR  PA. CAR
 001 298404 P 01039 12  2  0  0 MV/TRAF  REAR  STRAGHT  LT TURN           NO SPEC   ENT MEDN  SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN        (EB) C2-4239 AT SARATOGA                                    VEH DIR = N N

                                                   PA. CAR  PA. CAR
 001 323262 P 02020 15  2  0  0 MV/TRAF  ANGL  STOP SG  SLOWING           NO SPEC   NO SPEC   SIGNAL   DAYLGT  N-SPC OTHR NO SPEC
                          (EB) C1-4223 MERIDAN         (EB) C2-4239 AT SARATOGA                                    VEH DIR =

                                                   PA. CAR  NOTSPEC  NOTSPEC
 001 401449 P 06200 16  3  0  0 MV/TRAF  ANGL  OTHER    LT TURN  NO SPEC  NO SPEC   NO SPEC   SIGNAL   DAYLGT  RAIN  WET  NO DFCT
                          (EB) C1-4223 MERIDIAN        (EB) C2-4239 AT SARATOGA                                    VEH DIR = S N

                                                   NOTSPEC  NOTSPEC
 001 090102 P 11190 20  2  0  0 NO SPEC  REAR  PARKED   STRAGHT           NO SPEC   XD MEDIAN NO TCD   DRK-LGT CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN        (EB) C2-4239 AT SARATOGA                                    VEH DIR =   E

 001 079594 P 06308 13  2  0  0 MV/PRKD  ANGL  STRAGHT  PARKED            NO SPEC   NO SPEC   NO TCD   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA                                    VEH DIR = E

 001 204058 P 07188 14  2  0  0 MV/TRAF  OTHR  STOP SG  BACKING           NO SPEC   NO SPEC   SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA                                    VEH DIR = N W

                                                   PA. CAR  PA. CAR
 001 287923 P 01290 20  2  0  0 MV/TRAF  REAR  STRAGHT  NO SPEC           NO SPEC   XD MEDIAN NO TCD   DRK-LGT CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = N N

                                                   PA. CAR  PA. CAR
 001 359261 P 05060 11  2  0  0 MV/TRAF  REAR  STOP SG  STRAGHT           NO SPEC   NO SPEC   SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN        (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = N N

 001 551710 P 04155 24  2  0  0 MV/TRAF  REAR  STRT/TR  STRT/TR           NO SPEC   NO SPEC   SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = N N

 001 214811 I 02156 05  2  1  0 MV/TRAF  ANGL  STRAGHT  STRAGHT           NO SPEC   NO SPEC   SIGNAL   DRK-LGT CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDAN ST      (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = N E

 001 446710 P 10026 16  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT           NO SPEC   NO SPEC   NO TCD   DAYLGT  RAIN  WET  NO SPEC
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR =

 001 122866 P 09287 16  2  0  0 MV/TRAF  ANGL  LT TURN  NO SPEC           NO SPEC   ENT MEDN  SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = W N

 001 217491 I 10357 00  2  3  0 MV/TRAF  ANGL  STRAGHT  STRAGHT           NO SPEC   NO SPEC   SIGNAL   DRK-LGT CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDAN ST      (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = N W

 001 101524 P 06024 20  2  0  0 MV/TRAF  REAR  STRT/TR  STRT/TR           NO SPEC   NO SPEC   SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR = W W

 001 137074 I 04[illegible] 17  1  1  0 PEDEST   OTHR  STRAGHT                    W/300 FEET NO SPEC   SIGNAL   DAYLGT  CLEAR DRY  NO DFCT
                          (EB) C1-4223 MERIDIAN ST     (EB) C2-4239 AT SARATOGA ST                                 VEH DIR =
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FOR PERIOD 01/01/79 THRU 12/31/80     INTERSECTION AT C1-4223 AND C2-4239 IN BOSTON     MERIDIAN @ Saratoga
  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  INJURY ACCIDENTS = 000003                           PEOPLE INJURED = 000005  SEV (1)=   0 (2)=   0 (3)=   2 (4)=   1 (5)=   2

  PDO * ACCIDENTS  = 000012                                                      * PDO = PROPERTY DAMAGE ONLY
                     ------                                          ------
  TOTAL ACCIDENTS  = 000015                           TOTAL INJURIES = 000005

   COLL WITH         COLL TYPE       LIGHT COND        WEATH COND        MONTH        DAY OF WK        HOUR OF DAY              SEV DEFINED

 PEDEST        1    REAR       6    DAYLGT      11    CLEAR      12    JAN.      2    SUN     1    1 AM     0   1 PM    1  (1)= KILLED
 MV/TRAF      12    ANGL       7    DWN/DSK      0    FOGGY       0    FEB.      2    MON     0    2 AM     0   2 PM    1
 MV/PRKD       1    HEAD       0    DRK-LGT      4    CLDY        0    MARCH     0    TUE     4    3 AM     0   3 PM    1  (2)= MAJOR INJURY
 RR TR         0    OTHR       2    NO-LGTS      0    RAIN        2    APRIL     2    WED     4    4 AM     0   4 PM    3
 ROR/HFO       0                    NO SPEC      0    SNOW        0    MAY       1    THR     0    5 AM     1   5 PM    1  (3)= MINOR INJURY
 BICYCLE       0                                      SLEET       0    JUNE      3    FRI     2    6 AM     0   6 PM    0
 OVRTRNO       0                                      N-SPC       1    JULY      1    SAT     4    7 AM     0   7 PM    0  (4)= INJURY NOT
 ROR/NC        0                                                       AUG.      0    N-S     0    8 AM     0   8 PM    3         VISIBLE
 HFO/SSI       0                                                       SEPT.     1                 9 AM     0   9 PM    0
 OTHER         0                                                       OCT.      2                 10AM     0   10PM    0  (5)= NOT SPECIFIED
 NO SPEC       1                                                       NOV.      1                 11AM     1   11PM    0
                                                                       DEC.      0                 12NN     1   12MD    1
                                                                       N-SPC     0                              N-SP    1

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS          9
  TRUCKS                  0
  TRAILERS                0
  TAXI                    0
  HANDICAP                0
  MOTORCYCLE              0
  EMERGENCY               0
  NOT SPEC. REG.          4
```

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Saratoga @ Meridian

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BOSTON                N  N  K                        INTERSECTION AT C1-4239 AND C2-4223
                      G  U  I
         T         H  .  .  L
         Y         O  V  I  L                      COLLISION MOTIONS                                                    ENVIRONMENTAL CONDITIONS
LOC CASE P         U  E  N  E  COLL    COLL ************************* PEDESTRIAN VEHICLE TRAFFIC  ***************************
NO.  NO. E DATE    R  H  J  D  WITH    TYPE  VEH 1   VEH 2   VEH 3     ACTION    ACTION  CONTROL  LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** ******* **** ******* ******* *******  ********** ******** *******  ******* *****  ****  *******

001 101301 I 07206 08  1  1  0 PEDEST  OTHR  NO SPEC                   NO SPEC   NO SPEC  NO TCD   DRK-LGT CLEAR  DRY   NO DFCT
                               (EB) C1-4239 SARATOGA        (EB) C2-4223 AT MERIDIAN                          VEH DIR = N

001 274947 P 01089 20  2  0  0 MV/TRAF ANGL  STRAGHT STRAGHT           NO SPEC   NO SPEC  SIGNAL   DRK-LGT CLEAR  DRY   NO DFCT
                               (EB) C1-4239 SARATOGA        (EB) C2-4223 AT MERIDIAN                          VEH DIR = N W

                                             PA. CAR PA. CAR
001 313754 I 02070 16  2  1  0 MV/TRAF ANGL  STRAGHT STRAGHT           NO SPEC   NO SPEC  SIGNAL   DAYLGT  CLEAR  WET   NO DFCT
                               (EB) C1-4239 SARATOGA        (EB) C2-4223 AT MERIDIAN ST                       VEH DIR = N S

                                             PA. CAR PA. CAR
001 425408 P 05200 06  2  0  0 MV/TRAF ANGL  STRAGHT STRAGHT           NO SPEC   NO SPEC  SIGNAL   DAYLGT  CLDY   DRY   NO DFCT
                               (EB) C1-4239 SARATOGA ST     (EB) C2-4223 AT MERIDIAN ST                       VEH DIR = N W

                                             PA. CAR NOTSPEC
001 032904 P 09260 18  2  0  0 OTHER   ANGL  PARKED  STRAGHT           OTHER     NO SPEC  NO TCD   DAYLGT  CLEAR  DRY   NO DFCT
                               (EB) C1-4239 SARATOGA ST     (EB) C2-4223 AT MERIDIAN ST                       VEH DIR =   N

001 55539C P 04225 14  2  0  0 MV/TRAF ANGL  SLOWING STRAGHT           NO SPEC   NO SPEC  NO TCD   DAYLGT  CLEAR  DRY   NO DFCT
                               (EB) C1-4239 SARATOGA ST     (EB) C2-4223 AT MERIDIAN ST                       VEH DIR = N S

001 239511 P 01057 24  2  0  0 MV/TRAF REAR  OTHER   STRAGHT           NO SPEC   NO SPEC  SIGNAL   DAYLGT  CLEAR  WET   NO DFCT
                               (EB) C1-4239 SARATOGA ST     (EB) C2-4223 AT MERIDIAN ST                       VEH DIR = S S

001 105708 P 03038 14  2  0  0 MV/PRKD ANGL  PARKED  RT TURN           NO SPEC   NO SPEC  SIGNAL   DAYLGT  CLEAR  DRY   NO DFCT
                               (EB) C1-4239 SARATOGA ST     (EB) C2-4223 AT MERIDIAN ST                       VEH DIR =
FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4239 AND C2-4223 IN BOSTON

 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000002                           PEOPLE INJURED = 000002  SEV (1)=   0 (2)=   0 (3)=   1 (4)=   1 (5)=   0

 PDO * ACCIDENTS  = 000006                                                * PDO = PROPERTY DAMAGE ONLY
                    ------                                          ------
 TOTAL ACCIDENTS  = 000008                           TOTAL INJURIES = 000002

  COLL WITH        COLL TYPE     LIGHT COND        WEATH COND      MONTH        DAY OF WK        HOUR OF DAY              SEV DEFINED

PEDEST     1    REAR      1   DAYLGT       6   CLEAR     7   JAN.      2   SUN     0     1 AM    0   1 PM   0 (1)= KILLED
MV/TRAF    5    ANGL      6   DAWN/DSK     0   FOGGY     0   FEB.      1   MON     1     2 AM    0   2 PM   2
MV/PRKD    1    HEAD      0   DRK-LGT      2   CLDY      1   MARCH     1   TUE     1     3 AM    0   3 PM   0 (2)= MAJOR INJURY
RR TR      0    OTHR      1   NO-LCTS      0   RAIN      0   APRIL     1   WED     1     4 AM    0   4 PM   1
PDF/FFO    0                  NO SPEC      0   SNOW      0   MAY       0   THR     2     5 AM    0   5 PM   0 (3)= MINOR INJURY
BICYCLE    0      TYPE OF VEHICLE COUNTS       SLEET     0   JUNE      1   FRI     3     6 AM    1   6 PM   1
OVRTRND    0                                   N-SPC     0   JULY      1   SAT     0     7 AM    0   7 PM   0 (4)= INJURY NOT
PDF/NC     0     PASSENGER CARS        5                     AUG.      0   N-S     0     8 AM    1   8 PM   1        VISIBLE
HEC/SSI    0     TRUCKS                0                     SEPT.     1                 9 AM    0   9 PM   0
OTHER      1     TRAILERS              0                     OCT.      0                10AM     0  10PM    0 (5)= NOT SPECIFIED
NO SPEC    0     TAXI                  0                     NOV.      0                11AM     0  11PM    0
                 HANDICAP              0                     DEC.      0                12NN     0  12MD    1
                 MOTORCYCLE            0                     N-SPC     0                            N-SP    0
                 EMERGENCY             0
                 NOT SPEC. [illegible]     1
```

#Acc = 8

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                            COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT              PAGE    1
                            DEPARTMENT OF PUBLIC WORKS                 FOR PERIOD
                            TRAFFIC ENGINEERING SECTION           01/01/75 THRU 12/31/80             REPORT DATE 06/27/86

  BOSTON                  N  N  K                      INTERSECTION AT C1-4226 AND C2-4239
                          C  O  I
            T        H    .  .  L
            Y        U    V  I  L                      COLLISION MOTIONS                                                     ENVIRONMENTAL CONDITIONS
 LOC CASE   P        U    E  N  E  COLL     COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC   ****************************
 NO.  NO.   E DATE   R    H  J  D  WITH     TYPE  VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF ROADWAY
 *** ****** * ***** ** ** ** ** ******* **** ******* ******* ******* ********** ********* ******* ******* ***** **** *******

 001 62727K P 11196 16  2  0  0 MV/TRAF  ANGL  STOP SG  BACKING             NO SPEC    NO SPEC   STOP     DAYLGT  CLEAR  DRY  NO DECT
                            (EB) C1-4226 BORDER ST          (EB) C2-4239 AT SARATOGA ST                         VEH DIR = N E
                                 INTERSECTION AT C1-4226 AND C2-4239 IN BOSTON

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS  = 000001                                              * PDO - PROPERTY DAMAGE ONLY
                     ------                                     ------
  TOTAL ACCIDENTS  = 000001                           TOTAL INJURIES = 000000

   COLL WITH        COLL TYPE       LIGHT COND      WEATH COND       MONTH         DAY OF WK         HOUR OF DAY             SEV DEFINED

 PEDEST      0    REAR      0    DAYLGT     1    CLEAR     1    JAN.     0    SUN     0    1 AM     0   1 PM     0 (1)= KILLED
 MV/TRAF     1    ANGL      1    DWN/DSK    0    FOGGY     0    FEB.     0    MON     0    2 AM     0   2 PM     0
 MV/PRKD     0    HEAD      0    DRK-LGT    0    CLDY      0    MARCH    0    TUE     0    3 AM     0   3 PM     0 (2)= MAJOR INJURY
 RR TR       0    OTHR      0    NO-LGTS    0    RAIN      0    APRIL    0    WED     0    4 AM     0   4 PM     1
 ROR/HFO     0                   NO SPEC    0    SNOW      0    MAY      0    THR     0    5 AM     0   5 PM     0 (3)= MINOR INJURY
 BICYCLE     0                                   SLEET     0    JUNE     0    FRI     1    6 AM     0   6 PM     0
 OVRTRND     0                                   N-SPC     0    JULY     0    SAT     0    7 AM     0   7 PM     0 (4)= INJURY NOT
 ROR/NC      0                                                  AUG.     0    N-S     0    8 AM     0   8 PM     0         VISIBLE
 HFO/SSI     0                                                  SEPT.    0                 9 AM     0   9 PM     0
 OTHER       0                                                  OCT.     0                 10AM     0   10PM     0 (5)= NOT SPECIFIED
 NO SPEC     0                                                  NOV.     1                 11AM     0   11PM     0
                                                                DEC.     0                 12NN     0   12MD     0
                                                                N-SPC    0                              N-SP     0
```

Border @ Saratoga

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 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4239 AND C2-4226 IN BOSTON
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Sartoga @ Border

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  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS  = 000000                                              * PDO - PROPERTY DAMAGE ONLY
                     ------                                     ------
  TOTAL ACCIDENTS  = 000000                           TOTAL INJURIES = 000000

   COLL WITH        COLL TYPE       LIGHT COND      WEATH COND       MONTH         DAY OF WK         HOUR OF DAY             SEV DEFINED

 PEDEST      0    REAR      0    DAYLGT     0    CLEAR     0    JAN.     0    SUN     0    1 AM     0   1 PM     0 (1)= KILLED
 MV/TRAF     0    ANGL      0    DWN/DSK    0    FOGGY     0    FEB.     0    MON     0    2 AM     0   2 PM     0
 MV/PRKD     0    HEAD      0    DRK-LGT    0    CLDY      0    MARCH    0    TUE     0    3 AM     0   3 PM     0 (2)= MAJOR INJURY
 RR TR       0    OTHR      0    NO-LGTS    0    RAIN      0    APRIL    0    WED     0    4 AM     0   4 PM     0
 ROR/HFO     0                   NO SPEC    0    SNOW      0    MAY      0    THR     0    5 AM     0   5 PM     0 (3)= MINOR INJURY
 BICYCLE     0                                   SLEET     0    JUNE     0    FRI     0    6 AM     0   6 PM     0
 OVRTRND     0                                   N-SPC     0    JULY     0    SAT     0    7 AM     0   7 PM     0 (4)= INJURY NOT
 ROR/NC      0                                                  AUG.     0    N-S     0    8 AM     0   8 PM     0         VISIBLE
 HFO/SSI     0                                                  SEPT.    0                 9 AM     0   9 PM     0
 OTHER       0                                                  OCT.     0                 10AM     0   10PM     0 (5)= NOT SPECIFIED
 NO SPEC     0                                                  NOV.     0                 11AM     0   11PM     0
                                                                DEC.     0                 12NN     0   12MD     0
                                                                N-SPC    0                              N-SP     0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS       0
  TRUCKS               0
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4223 AND C2-4225 IN BOSTON
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Meridian @ Liverpool

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FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

PDU * ACCIDENTS  = 000000                                               * PDU = PROPERTY DAMAGE ONLY
                   ------                                     ------
TOTAL ACCIDENTS  = 000000                           TOTAL INJURIES = 000000

 COLL WITH         COLL TYPE     LIGHT COND      WEATH COND      MONTH        DAY OF WK       HOUR OF DAY                SEV DEFINED

PEDEST       0    REAR     0    DAYLGT     0    CLEAR     0    JAN.     0    SUN     0    1 AM    0   1 PM    0 (1)= KILLED
MV/TRAF      0    ANGL     0    DWN/DSK    0    FOGGY     0    FEB.     0    MON     0    2 AM    0   2 PM    0
MV/PRKD      0    HEAD     0    DRK-LGT    0    CLDY      0    MARCH    0    TUE     0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
RR TR        0    OTHR     0    NO-LGTS    0    RAIN      0    APRIL    0    WED     0    4 AM    0   4 PM    0
ROR/HFO      0                  NO SPEC    0    SNOW      0    MAY      0    THR     0    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE      0                                  SLEET     0    JUNE     0    FRI     0    6 AM    0   6 PM    0
OVRTRND      0                                  N-SPC     0    JULY     0    SAT     0    7 AM    0   7 PM    0 (4)= INJURY NOT
ROR/NC       0                                                 AUG.     0    N-S     0    8 AM    0   8 PM    0         VISIBLE
HED/SSI      0                                                 SEPT.    0                 9 AM    0   9 PM    0
OTHER        0                                                 OCT.     0                10AM     0  10PM     0 (5)= NOT SPECIFIED
NO SPEC      0                                                 NOV.     0                11AM     0  11PM     0
                                                               DEC.     0                12NN     0  12MD     0
                                                               N-SPC    0                           N-SP     0
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4225 AND C2-4223 IN BOSTON
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Liverpool @ Meridian

```
FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

PDU * ACCIDENTS  = 000000                                               * PDU = PROPERTY DAMAGE ONLY
                   ------                                     ------
TOTAL ACCIDENTS  = 000000                           TOTAL INJURIES = 000000

 COLL WITH         COLL TYPE     LIGHT COND      WEATH COND      MONTH        DAY OF WK       HOUR OF DAY                SEV DEFINED

PEDEST       0    REAR     0    DAYLGT     0    CLEAR     0    JAN.     0    SUN     0    1 AM    0   1 PM    0 (1)= KILLED
MV/TRAF      0    ANGL     0    DWN/DSK    0    FOGGY     0    FEB.     0    MON     0    2 AM    0   2 PM    0
MV/PRKD      0    HEAD     0    DRK-LGT    0    CLDY      0    MARCH    0    TUE     0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
RR TR        0    OTHR     0    NO-LGTS    0    RAIN      0    APRIL    0    WED     0    4 AM    0   4 PM    0
ROR/HFO      0                  NO SPEC    0    SNOW      0    MAY      0    THR     0    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE      0                                  SLEET     0    JUNE     0    FRI     0    6 AM    0   6 PM    0
OVRTRND      0                                  N-SPC     0    JULY     0    SAT     0    7 AM    0   7 PM    0 (4)= INJURY NOT
ROR/NC       0                                                 AUG.     0    N-S     0    8 AM    0   8 PM    0         VISIBLE
HED/SSI      0                                                 SEPT.    0                 9 AM    0   9 PM    0
OTHER        0                                                 OCT.     0                10AM     0  10PM     0 (5)= NOT SPECIFIED
NO SPEC      0                                                 NOV.     0                11AM     0  11PM     0
                                                               DEC.     0                12NN     0  12MD     0
                                                               N-SPC    0                           N-SP     0

TYPE OF VEHICLE COUNTS

 PASSENGER CARS      0
 TRUCKS              0
 TRAILERS            0
 TAXI                0
 HANDICAP            0
 MOTORCYCLE          0
 EMERGENCY           0
 NOT SPEC. REG.      0
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                                        COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT              PAGE    1
                                        DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                                        TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80               REPORT DATE 06/27/86

   BOSTON              N  N  K                     INTERSECTION AT C1-4238 AND C2-4223        Porter @ Meridian
                       C  O  I
                 I  H  .  .  L
                 Y  O  Y  I  L                 COLLISION MOTIONS                                    ENVIRONMENTAL CONDITIONS
 LOC CASE   P    U  E  N  E  COLL     COLL  ************************  PEDESTRIAN VEHICLE  TRAFFIC  ****************************
 NO.  NO.   E DATE   R  H  J  O  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION    ACTION   CONTROL   LIGHT   WEATH SURF ROADWAY
 *** ****** * ***** ** ** ** ** *******  ****  *******  *******  *******  ********** ********* *******  ******* ***** **** *******

                                               PA. CAR  PA. CAR
 001 286741 P 04200 04  2  0  0 MV/TRAF  REAR  OTHER    STRAGHT            NO SPEC   NO SPEC   STOP     DAYLGT  CLEAR WET  H-R-8
                                 (EB) C1-4238 BENNINGTON        (EB) C2-4223 AT MERIDIAN                   VEH DIR = S S

 001 362263 P 03186 21  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT            NO SPEC   XO MEDIAN NO TCO   DAYLGT  CLEAR SNOW NO DFCT
                                 (EB) C1-4238 BENNINGTON        (EB) C2-4223 AT MERIDIAN                   VEH DIR = S S

                                               PA. CAR  PA. CAR
 001 348478 P 02090 02  2  0  0 MV/PRKD  REAR  PARKED   STRAGHT            NO SPEC   NO SPEC   NO TCO   DRK-LGT CLEAR DRY  NO DFCT
                                 (EB) C1-4238 30 BENNINGTON ST  (EB) C2-4223 0300 FEET   OF MERIDIAN ST    VEH DIR = S S

                                               PA. CAR  PA. CAR
 001 383356 P 04240 13  2  0  0 MV/TRAF  OTHR  RT TURN  STRAGHT            NO SPEC   NO SPEC   NO TCD   DAYLGT  CLEAR DRY  NO DFCT
                 #ACC=H          (EB) C1-4238 BENNINGTON ST     (EB) C2-4223 AT MERIDIAN ST                VEH DIR =

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  INJURY ACCIDENTS = 000000                          PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  PDO * ACCIDENTS  = 000004                                       * PDO = PROPERTY DAMAGE ONLY
                     ------                                ------
  TOTAL ACCIDENTS  = 000004                 TOTAL INJURIES = 000000

   COLL WITH       COLL TYPE     LIGHT COND      WEATH COND       MONTH       DAY OF WK        HOUR OF DAY           SEV DEFINED

 PEDEST      0   REAR     2   DAYLGT    3   CLEAR    4   JAN.     0   SUN   0    1 AM   0   1 PM   1 (1)= KILLED
 MV/TRAF     3   ANGL     1   DWN/DSK   0   FOGGY    0   FEB.     2   MON   0    2 AM   1   2 PM   0
 MV/PRKD     1   HEAD     0   DRK-LGT   1   CLDY     0   MARCH    1   TUE   0    3 AM   0   3 PM   0 (2)= MAJOR INJURY
 RR TK       0   OTHR     1   NO-LGTS   0   RAIN     0   APRIL    1   WED   1    4 AM   0   4 PM   0
 ROR/HFO     0                NO SPEC   0   SNOW     0   MAY      0   THR   2    5 AM   0   5 PM   0 (3)= MINOR INJURY
 BICYCLE     0                              SLEET    0   JUNE     0   FRI   0    6 AM   0   6 PM   0
 OVRTRNC     0                              N-SPC    0   JULY     0   SAT   1    7 AM   0   7 PM   0 (4)= INJURY NOT
 ROP/NC      0                                           AUG.     0   N-S   0    8 AM   0   8 PM   0         VISIBLE
 HFO/SSI     0                                           SEPT.    0              9 AM   1   9 PM   1
 OTHER       0                                           OCT.     0             10AM    0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                           NOV.     0             11AM    0  11PM    0
                                                         DEC.     0             12NN    0  12MD    0
                                                         N-SPC    0                        N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS        6
  TRUCKS                0
  TRAILERS              0
  TAXI                  0
  HANDICAP              0
  MOTORCYCLE            0
  EMERGENCY             0
  NOT SPEC. REG.        0
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                                           COMMONWEALTH OF MASSACHUSETTS             TRAFFIC ACCIDENT REPORT                     PAGE    1
                                           DEPARTMENT OF PUBLIC WORKS                        FOR PERIOD
                                           TRAFFIC ENGINEERING SECTION               01/01/75 THRU 12/31/80                     REPORT DATE 06/27/86

   BOSTON                N  N  K                             INTERSECTION AT C1-4223 AND C2-4238
                         L  O  I
                T     H  .  .  L
                Y     L  V  I  L                     COLLISION MOTIONS                                                      ENVIRONMENTAL CONDITIONS
 LOC CASE       P     U  E  N  E  COLL     COLL  ************************* PEDESTRIAN  VEHICLE  TRAFFIC  *****************************
 NO.  NO.       E DATE R  H  J  D WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******   * ***** ** ** ** ** ******** ****  *******  *******  ******* ********** ********* *******  *******  *****  ****  *******

 001 C33695 P 11059 19  2  0  0 MV/TRAF  OTHR  STRAGHT  LT TURN            NO SPEC   NO SPEC   NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST      (EB) C2-4238 AT BENNINGTON                       VEH DIR = S S

 001 042280 P 07125 19  2  0  0 MV/TRAF  ANGL  LT TURN  STRAGHT            NO SPEC   NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST      (EB) C2-4238 AT BENNINGTON ST                    VEH DIR =

 001 C43030 P 07135 15  2  0  0 MV/TRAF  ANGL  LT TURN  STRAGHT            NO SPEC   NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST      (EB) C2-4238 AT BENNINGTON ST                    VEH DIR = S W

 001 72767D P 11215 17  2  0  0 MV/TRAF  ANGL  ALLY/DR  STRAGHT            NO SPEC   NO SPEC   NO TCD   DWN/DSK  RAIN   WET   NO DFCT
                                 (EB) C1-4223 MERIDIAN         (EB) C2-4238 AT BENNINGTON ST                    VEH DIR =

 001 13944K I 08046 14  2  1  0 MV/TRAF  ANGL  LT TURN  STRAGHT            NO SPEC   NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO SPEC
                                 (EB) C1-4223 MERRIDIAN ST     (EB) C2-4238 AT BENNINGTON ST                    VEH DIR = W N

 001 043547 P 09247 00  2  0  0 MV/TRAF  REAR  LT TURN  STRAGHT           W/300 FEET NO SPEC   SIGNAL   DRK-LGT  RAIN   WET   NO SPEC
                                 (EB) C1-4223 MERIDIAN ST      (EB) C2-4238 AT BENNINGTON ST                    VEH DIR = N N
  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000001                           PEOPLE INJURED = 000001  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    1 (5)=    0

  PDO * ACCIDENTS  = 000005                                          * PDO = PROPERTY DAMAGE ONLY
                     ------                                  ------
  TOTAL ACCIDENTS  = 000006                          TOTAL INJURIES = 000001

   COLL WITH        COLL TYPE     LIGHT COND        WEATH COND        MONTH         DAY OF WK          HOUR OF DAY              SEV DEFINED

 PEDEST      0    REAR      1    DAYLGT     3    CLEAR     4    JAN.       0    SUN     1    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF     6    ANGL      4    D-N/DSK    1    FOGGY     0    FEB.       0    MON     1    2 AM    0   2 PM    1
 MV/PRKD     0    HEAD      0    DRK-LGT    2    CLDY      0    MARCH      0    TUE     0    3 AM    0   3 PM    1 (2)= MAJOR INJURY
 RR TR       0    OTHR      1    NO-LGTS    0    RAIN      2    APRIL      0    WED     1    4 AM    0   4 PM    0
 ROR/HFO     0                   NO SPEC    0    SNOW      0    MAY        0    THR     0    5 AM    0   5 PM    1 (3)= MINOR INJURY
 BICYCLE     0                                   SLEET     0    JUNE       0    FRI     1    6 AM    0   6 PM    0
 OVRTRND     0                                   N-SPC     0    JULY       2    SAT     2    7 AM    0   7 PM    2 (4)= INJURY NOT
 ROR/NC      0                                                  AUG.       1    N-S     0    8 AM    0   8 PM    0          VISIBLE
 HFO/SSI     0                                                  SEPT.      1                 9 AM    0   9 PM    0
 OTHER       0                                                  OCT.       0                 10AM    0   10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                                  NOV.       2                 11AM    0   11PM    0
                                                                DEC.       0                 12NN    0   12MD    0
                                                                N-SPC      0                             N-SP    1

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS         0
  TRUCKS                 0
  TRAILERS               0
  TAXI                   0
  HANDICAP               0
  MOTORCYCLE             0
  EMERGENCY
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Meridian / Porter/Benningt

Acc = 6

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                                        COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                      PAGE    1
                                        DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                                        TRAFFIC ENGINEERING SECTION            01/01/75 THRU 12/31/80                       REPORT DATE 06/27/86

   BOSTON                   N  N  K                      INTERSECTION AT C1-0972 AND C2-3982
                            L  O  I                                                  Porter @ Chelsea
          T           H     .  .  L
          Y           O     V  I  L                      COLLISION MOTIONS                                                    ENVIRONMENTAL CONDITIONS
 LOC CASE P           U     E  N  E  COLL     COLL  ************************* PEDESTRIAN VEHICLE  TRAFFIC  *****************************
 NO.  NO. E DATE      R     H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION    ACTION  CONTROL   LIGHT   WEATH SURF ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  *******  *******  *******  ********** ********* ******* ******* ***** **** *******

 C01 043681 P C6299 19  2  0  0 MV/PRKD  ANGL  PARKED   NO SPEC               NO SPEC    NO SPEC   NO ICD   DWN/DSK  CLEAR  DRY   NO DFCT
                                 (JP) C1-0972 PORTER ST         ( C) C2-3982 0020 FEET E OF CHELSEA ST              VEH DIR =    E

 NUMBER OF ACCIDENTS      1


 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-0972 AND C2-3982 IN BOSTON

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS  = 000001                                                    * PDO = PROPERTY DAMAGE ONLY
                     ------                                            ------
  TOTAL ACCIDENTS  = 000001                           TOTAL INJURIES = 000000

   COLL WITH        COLL TYPE     LIGHT COND        WEATH COND        MONTH        DAY OF WK          HOUR OF DAY            SEV DEFINED

 PEDEST       0   REAR      0   DAYLGT     0   CLEAR    1   JAN.     0   SUN    0    1 AM    0  1 PM    0 (1)= KILLED
 MV/TRAF      0   ANGL      1   DWN/DSK    1   FOGGY    0   FEB.     0   MON    0    2 AM    0  2 PM    0
 MV/PRKD      1   HEAD      0   DRK-LGT    0   CLDY     0   MARCH    0   TUE    0    3 AM    0  3 PM    0 (2)= MAJOR INJURY
 RR TR        0   OTHR      0   NO-LGTS    0   RAIN     0   APRIL    0   WED    1    4 AM    0  4 PM    0
 ROR/HFO      0                 NO SPEC    0   SNOW     0   MAY      0   THR    0    5 AM    0  5 PM    0 (3)= MINOR INJURY
 BICYCLE      0                                SLEET    0   JUNE     0   FRI    0    6 AM    0  6 PM    0
 LVRTRNO      0                                N-SPC    0   JULY     0   SAT    0    7 AM    0  7 PM    1 (4)= INJURY NOT
 POR/NC       0                                             AUG.     1   N-S    0    8 AM    0  8 PM    0        VISIBLE
 HEC/SSI      0                                             SEPT.    0               9 AM    0  9 PM    0
 OTHER        0                                             OCT.     0              10AM     0 10PM     0 (5)= NOT SPECIFIED
 NO SPEC      0                                             NOV.     0              11AM     0 11PM     0
                                                            DEC.     0              12NN     0 12MD     0
                                                            N-SPC    0                         N-SP     0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS          0
  TRUCKS                  0
  TRAILERS                0
  TAXI                    0
  HANDICAP                0
  MOTORCYCLE              0
  EMERGENCY               0
  NOT SPEC. REG.          0
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                              TRAFFIC ENGINEERING SECTION          01/01/75  THRU 12/31/80                        REPORT DATE 06/27/86

 BOSTON                  N  N  K                      INTERSECTION AT C1-3982 AND C2-0972
                         0  0  I
              T       H  .  .  L                                                      Chelsea @ Porter
              Y       O  V  I  L                 COLLISION MOTIONS                                                     ENVIRONMENTAL CONDITIONS
 LOC CASE     P       U  E  N  E  COLL     COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.     E DATE  R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION    ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******   * ***** ** ** ** ** *******  ****  *******  *******  *******  ********** ********* *******  ******* *****  ****  *******

                                                  PA. CAR  PA. CAR
 001 316035   P 03290 02  2  0  0 MV/TRAF  HEAD   STRAGHT  STRAGHT           NO SPEC    NO SPEC   SIGNAL   DRK-LGT  RAIN   WET   OTHER
                                  ( C) C1-3982 CHELSEA            (JP) C2-0972 AT PORTER                            VEH DIR = N S

                                                  PA. CAR  NOTSPEC  NOTSPEC
 001 377424   P 05170 16  3  0  0 MV/TRAF  ANGL   STOP SG  STRAGHT  STRAGHT  NO SPEC    NO SPEC   SIGNAL   DAYLGT   CLEAR  DRY   NO OFCT
              # Acc = 2           ( C) C1-3982 CHELSEA            (JP) C2-0972 AT PORTER                            VEH DIR = W N N

 NUMBER OF ACCIDENTS      2


 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-3982 AND C2-0972 IN BOSTON

  FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000000                            PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS   = 000002                                              * PDO = PROPERTY DAMAGE ONLY
                      ------                                          ------
  TOTAL ACCIDENTS   = 000002                           TOTAL INJURIES = 000000

   COLL WITH          COLL TYPE      LIGHT COND        WEATH COND        MONTH          DAY OF WK        HOUR OF DAY               SEV DEFINED

 PEDEST       0    REAR      0    DAYLGT      1    CLEAR      1    JAN.      0    SUN    0    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF      2    ANGL      1    DWN/DSK     0    FOGGY      0    FEB.      0    MON    0    2 AM    1   2 PM    0
 MV/PRKD      0    HEAD      1    DRK-LGT     1    CLDY       0    MARCH     1    TUE    0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
 FR TR        0    OTHR      0    NO-LGTS     0    RAIN       1    APRIL     0    WED    0    4 AM    0   4 PM    1
 ROR/HFO      0                   NO SPEC     0    SNOW       0    MAY       1    THR    0    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE      0                                    SLEET      0    JUNE      0    FRI    0    6 AM    0   6 PM    0
 OVRTRNO      0                                    N-SPC      0    JULY      0    SAT    2    7 AM    0   7 PM    0 (4)= INJURY NOT
 ROR/NC       0                                                    AUG.      0    N-S    0    8 AM    0   8 PM    0          VISIBLE
 HFO/SSI      0                                                    SEPT.     0                 9 AM    0   9 PM    0
 OTHER        0                                                    OCT.      0                 10AM    0   10PM    0 (5)= NOT SPECIFIED
 NO SPEC      0                                                    NOV.      0                 11AM    0   11PM    0
                                                                   DEC.      0                 12NN    0   12MD    0
                                                                   N-SPC     0                             N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS        3
  TRUCKS                0
  TRAILERS              0
  TAXI                  0
  HANDICAP              0
  MOTORCYCLE            0
  EMERGENCY             0
  NOT SPEC. REG.        2
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                                  COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                      PAGE    1
                                  DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                                  TRAFFIC ENGINEERING SECTION            01/01/75  THRU 12/31/80                  REPORT DATE 06/27/86

  BOSTON                N  N  K                            INTERSECTION AT C1-4177 AND C2-0972
                        C  O  I
           I         H  .  .  L                                                                BREMAN @ PORTER
           Y         D  V  I  L                COLLISION MOTIONS                                                            ENVIRONMENTAL CONDITIONS
LOC CASE   P         U  E  N  E  COLL    COLL  *************************  PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
NO.  NO.   E DATE    R  H  J  D  WITH    TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** ******* ****  ******* ******* *******  ********** ********* *******  ******* *****  ****  *******

                                              PA. CAR  PA. CAR
001 025392 I 08280 15  2  1  0 MV/TRAF  ANGL  STRAGHT  STRAGHT             NO SPEC     NO SPEC    STOP      DAYLGT  CLEAR  DRY   NO DFCT
                              (EB) C1-4177 BREMEN ST            (JP) C2-0972 AT PORTER                              VEH DIR = S E

                                              PA. CAR
001 349373 I 02230 01  1  1  0 PEDEST   OTHR  STRAGHT                      WLK W/TRAF  NO SPEC    NO TCD    DRK-LGT FOGGY  WET   NO DFCT
                              (EB) C1-4177 BREMEN ST            (JP) C2-0972 AT PORTEP ST                           VEH DIR =

                                              PA. CAR  NOTSPEC
001 348673 P 04080 16  2  0  0 MV/TRAF  ANGL  STRT/TR  STRAGHT             NO SPEC     ENT MEDN   STOP      DAYLGT  CLEAR  DRY   H-R-B
                              (EB) C1-4177 BREEMAN ST           (JP) C2-0972 AT PORTER ST                           VEH DIR = N E

001 045275 P 11219 07  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT             AT INTER    NO SPEC    NO TCD    NO SPEC CLEAR  DRY   NO DFCT
                   # ACC = 4  (EB) C1-4177 BREMEN ST            (JP) C2-0972 AT PORTER ST                           VEH DIR =
FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4177 AND C2-0972 IN BOSTON

 FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 INJURY ACCIDENTS  = 000002                           PEOPLE INJURED = 000002  SEV (1)=    0 (2)=    1 (3)=    0 (4)=    1 (5)=    0

 PDD * ACCIDENTS   = 000002                                                       * PDD = PROPERTY DAMAGE ONLY
                     ------                                        ------
 TOTAL ACCIDENTS   = 000004                           TOTAL INJURIES = 000002

  COLL WITH        COLL TYPE     LIGHT COND        WEATH COND        MONTH          DAY OF WK         HOUR OF DAY               SEV DEFINED

PEDEST       1   REAP      0   DAYLGT       2   CLEAR      3   JAN.       0   SUN      0    1 AM    1   1 PM    0 (1)= KILLED
MV/TRAF      3   ANGL      3   D-N/DSK      0   FOGGY      1   FEB.       1   MON      0    2 AM    0   2 PM    0
MV/PRKD      0   HEAD      0   DRK-LGT      1   CLDY       0   MARCH      0   TUE      1    3 AM    0   3 PM    1 (2)= MAJOR INJURY
FR TR        0   OTHR      1   NO-LGTS      0   RAIN       0   APRIL      1   WED      1    4 AM    0   4 PM    1
ROR/HFO      0                 NO SPEC      1   SNOW       0   MAY        0   THR      1    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE      0                                  SLEET      0   JUNE       0   FRI      0    6 AM    0   6 PM    0
OVRTRNC      0   TYPE OF VEHICLE COUNTS         N-SPC      0   JULY       0   SAT      1    7 AM    1   7 PM    0 (4)= INJURY NOT
ROR/NC       0                                                 AUG.       1   N-S      0    8 AM    0   8 PM    0        VISIBLE
HED/SSI      0    PASSENGER CARS          4                    SEPT.      0                 9 AM    0   9 PM    0
OTHER        0    TRUCKS                  0                    OCT.       0                10AM     0   10PM    0 (5)= NOT SPECIFIED
NO SPEC      0    TRAILERS                0                    NOV.       1                11AM     0   11PM    0
                  TAXI                    0                    DEC.       0                12NN     0   12MD    0
                  HANDICAP                0                    N-SPC      0                             N-SP    0
                  MOTORCYCLE              0
                  EMERGENCY               0
                  NOT SPEC. REG.          1
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                                  COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                     PAGE    1
                                  DEPARTMENT OF PUBLIC WORKS                   FOR PERIOD
                                  TRAFFIC ENGINEERING SECTION            01/01/75 THRU 12/31/80                REPORT DATE 06/27/86

   BOSTON                N  N  K                         INTERSECTION AT C1-0972 AND C2-4177
                         L  O  I
              I       H  .  .  L                                                                        PORTER @ BREMAN
              Y       O  V  I  L                         COLLISION MOTIONS                                         ENVIRONMENTAL CONDITIONS
  LOC CASE    P       U  E  N  E  COLL     COLL   ************************** PEDESTRIAN  VEHICLE   TRAFFIC   ******************************
  NO.  NO.    E DATE  R  H  J  D  WITH     TYPE    VEH 1     VEH 2    VEH 3    ACTION     ACTION   CONTROL    LIGHT    WEATH  SURF  ROADWAY
  *** ******  * ***** ** ** ** ** *******  ****   *******   *******  *******  ********** ********* *******   *******  *****  ****  *******

                                                  TRUCK     PA. CAR
  001 335666 P 11070 15  2  0  0 MV/TRAF  ANGL   STRAGHT   STRAGHT            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  WET   NO SPEC
                                  (JP) C1-0972 PORTER              (EB) C2-4177 AT BREMEN                             VEH DIR = N E

                                                  PA. CAR   PA. CAR
  001 093437 P 12300 12  2  0  0 MV/TRAF  ANGL   STRAGHT   LT TURN            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                  (JP) C1-0972 PORTER ST           (EB) C2-4177 AT BREMEN                             VEH DIR =

                                                  PA. CAR   PA. CAR
  001 098083 P 11050 08  2  0  0 MV/TRAF  ANGL   LT TURN   SLOWING            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                  (JP) C1-0972 PORTER ST           (EB) C2-4177 AT BREMEN ST                          VEH DIR = N E

                                                  PA. CAR   NOTSPEC
  001 078132 P 12140 17  2  0  0 MV/TRAF  OTHR   STRAGHT   STRAGHT            NO SPEC    NO SPEC   NO TCD    DRK-LGT  SNOW   SNOW  NO SPEC
                                  (JP) C1-0972 PORTER ST           (EB) C2-4177 AT BREMEN ST                          VEH DIR =

  001 113351 P 11219 07  2  0  0 MV/TRAF  OTHR   STRAGHT   STRAGHT            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
              #ACC = 5            (JP) C1-0972 PORTER ST           (EB) C2-4177 AT BREMEN ST                          VEH DIR = E N
  FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-0972 AND C2-4177 IN BOSTON

   FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   PDO * ACCIDENTS  = 000005                                      * PDO = PROPERTY DAMAGE ONLY
                      ------                                 ------
   TOTAL ACCIDENTS  = 000005                       TOTAL INJURIES = 000000

    COLL WITH       COLL TYPE     LIGHT COND      WEATH COND      MONTH        DAY OF WK        HOUR OF DAY             SEV DEFINED

  PEDEST     0   REAR     0   DAYLGT     4   CLEAR     4   JAN.    1   SUN    1    1 AM    0  1 PM    0 (1)= KILLED
  MV/TRAF    5   ANGL     3   DAWN/DSK   0   FOGGY     0   FEB.    0   MON    1    2 AM    0  2 PM    0
  MV/PRKD    0   HEAD     0   DRK-LGT    1   CLDY      0   MARCH   0   TUE    1    3 AM    0  3 PM    1 (2)= MAJOR INJURY
  RR TR      0   OTHR     2   NO-LGTS    0   RAIN      0   APRIL   0   WED    2    4 AM    0  4 PM    0
  ROR/HFO    0                NO SPEC    0   SNOW      1   MAY     0   THR    0    5 AM    0  5 PM    1 (3)= MINOR INJURY
  BICYCLE    0    TYPE OF VEHICLE COUNTS     SLEET     0   JUNE    0   FRI    0    6 AM    0  6 PM    0
  OVRTRND    0                               N-SPC     0   JULY    0   SAT    0    7 AM    1  7 PM    0 (4)= INJURY NOT
  ROR/NC     0     PASSENGER CARS      6                   AUG.    0   N-S    0    8 AM    1  8 PM    0        VISIBLE
  HFO/SSI    0     TRUCKS              1                   SEPT.   0                9 AM    0  9 PM    0
  OTHER      0     TRAILERS            0                   OCT.    0               10AM     0  10PM    0 (5)= NOT SPECIFIED
  NO SPEC    0     TAXI                0                   NOV.    2               11AM     0  11PM    0
                   HANDICAP            0                   DEC.    2               12NN     1  12MD    0
                   MOTORCYCLE          0                   N-SPC   0                           N-SP    0
                   EMERGENCY           0
                   NOT SPEC. REG.      1
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                          DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                          TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                   REPORT DATE 06/26/86

  BOSTON                 N  N  K                     INTERSECTION AT C1-0972 AND C2-4179     PORTER @ ORLEANS
                         O  O  I
            T         H  .  .  L
            Y         U  V  I  L                   COLLISION MOTIONS                                        ENVIRONMENTAL CONDITIONS
 LOC CASE   P         U  E  N  E  COLL      COLL   ************************   PEDESTRIAN  VEHICLE   TRAFFIC   **************************
 NO.  NO.   E DATE    R  H  J  O  WITH      TYPE   VEH 1     VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** *******   ****   *******   *******  *******  **********  ********* *******   ******* *****  ****  *******

                                                   PA. CAR
 001 339912 I 01280 22  1  4  0 HFO/SSI   OTHR   STRAGHT                         NO SPEC    BR RAIL   NO TCD    DRK-LGT  CLEAR  DRY   OTHER
                                (JP) C1-0972 PORTER ST          (EB) C2-4179 0015 FEET N OF ORLEANS ST               VEH DIR = N

                                                   PA. CAR   TRUCK
 001 317846 P 03180 22  2  0  0 HFO/SSI   OTHR   STRAGHT   RT TURN               NO SPEC    BR RAIL   STOP      DRK-LGT  CLEAR  DRY   NO OFCT
                                (JP) C1-0972 PORTER ST          (EB) C2-4179 AT ORLEANS ST                           VEH DIR = N E

                                                   PA. CAR   PA. CAR
 001 009275 P 08070 15  2  0  0 NO SPEC   ANGL   STRAGHT   STRAGHT               NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO OFCT
                                (JP) C1-0972 PORTER             (EB) C2-4179 AT ORLEANS ST                           VEH DIR = S E

                                                   PA. CAR   NOTSPEC
 001 035919 P 09260 15  2  0  0 MV/TRAF   ANGL   STRAGHT   LT TURN               NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO OFCT
                                (JP) C1-0972 PORTER ST          (EB) C2-4179 AT ORLEANS ST                           VEH DIR = E N

 001 019076 P 09189 22  2  0  0 MV/TRAF   OTHR   STRAGHT   STRAGHT               NO SPEC    NO SPEC   NO TCD    DRK-LGT  CLEAR  DRY   NO OFCT
              # ACC = 5         (JP) C1-0972 PORTER ST          (EB) C2-4179 AT ORLEANS ST                           VEH DIR =
 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-0972 AND C2-4179 IN BOSTON

   FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   INJURY ACCIDENTS  = 000001                           PEOPLE INJURED = 000004  SEV (1)=    0 (2)=    1 (3)=    0 (4)=    1 (5)=    2

   PDO * ACCIDENTS   = 000004                                                  * PDO = PROPERTY DAMAGE ONLY
                       ------                                      ------
   TOTAL ACCIDENTS   = 000005                          TOTAL INJURIES = 000004

   COLL WITH          COLL TYPE        LIGHT COND        WEATH COND        MONTH          DAY OF WK         HOUR OF DAY            SEV DEFINED

 PEDEST       0    REAR      0     DAYLGT      2     CLEAR     5     JAN.       1     SUN     0     1 AM     0   1 PM     0 (1)= KILLED
 MV/TRAF      2    ANGL      2     DWN/DSK     0     FOGGY     0     FEB.       0     MON     1     2 AM     0   2 PM     0
 MV/PRKD      0    HEAD      0     DRK-LGT     3     CLDY      0     MARCH      1     TUE     2     3 AM     0   3 PM     2 (2)= MAJOR INJURY
 RR TP        0    OTHR      3     NO-LGTS     0     RAIN      0     APRIL      0     WED     0     4 AM     0   4 PM     0
 ROR/HFO      0                    NO SPEC     0     SNOW      0     MAY        0     THR     1     5 AM     0   5 PM     0 (3)= MINOR INJURY
 BICYCLE      0                                      SLEET     0     JUNE       0     FRI     1     6 AM     0   6 PM     0
 OVRTRND      0   TYPE OF VEHICLE COUNTS             N-SPC     0     JULY       0     SAT     0     7 AM     0   7 PM     0 (4)= INJURY NOT
 ROR/NC       0                                                      AUG.       1     N-S     0     8 AM     0   8 PM     0          VISIBLE
 HFO/SSI      2     PASSENGER CARS         5                         SEPT.      2                   9 AM     0   9 PM     0
 OTHER        0     TRUCKS                 1                         OCT.       0                   10AM     0   10PM     3 (5)= NOT SPECIFIED
 NO SPEC      1     TRAILERS               0                         NOV.       0                   11AM     0   11PM     0
                    TAXI                   0                         DEC.       0                   12NN     0   12MD     0
                    HANDICAP               0                         N-SPC      0                                N-SP     0
                    MOTORCYCLE             0
                    EMERGENCY              0
                    NCT SPEC. REG.         1
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ORLEANS @ PORTER

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                             COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                  PAGE    1
                             DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                             TRAFFIC ENGINEERING SECTION            01/01/75 THRU 12/31/80                   REPORT DATE 06/26/86

  BOSTON               N  N  K                    INTERSECTION AT C1-4179 AND C2-0972
                       O  O  I
           T        H  .  .  L
           Y        J  V  I  L                    COLLISION MOTIONS                                        ENVIRONMENTAL CONDITIONS
LOC CASE   P        U  E  N  E  COLL    COLL   *************************  PEDESTRIAN  VEHICLE  TRAFFIC   ******************************
NO.  NO.   E DATE   R  H  J  D  WITH    TYPE    VEH 1    VEH 2    VEH 3    ACTION      ACTION  CONTROL    LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** *******  ****   *******  *******  *******  **********  *********  *******   *******  *****  ****  *******

                                               PA. CAR  NOTSPEC
001 310812 P 02210 16  2  0  0 MV/PRKD  OTHR   PARKED   NO SPEC          NO SPEC     NO SPEC  NO TCD    NO SPEC  N-SPC  OTHR  NO SPEC
                               (EB) C1-4179 ORLEANS ST        (JP) C2-0972 AT PORTER                        VEH DIR =

001 079918 P 08129 23  2  0  0 MV/TRAF  ANGL   LT TURN  STRAGHT          NO SPEC     NO SPEC  STOP      DRK-LGT  RAIN   WET   NO DFCT
                               (EB) C1-4179 ORLEANS           (JP) C2-0972 AT PORTEP ST                     VEH DIR =

NUMBER OF ACCIDENTS     2


FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-4179 AND C2-0972 IN BOSTON

 FATAL ACCIDENTS  = 000000   PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 INJURY ACCIDENTS = 000000                            PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 PDO * ACCIDENTS  = 000002                                                      * PDO = PROPERTY DAMAGE ONLY
                    ------                                             ------
 TOTAL ACCIDENTS  = 000002                            TOTAL INJURIES = 000000

  COLL WITH       COLL TYPE     LIGHT COND       WEATH COND         MONTH     DAY OF WK         HOUR OF DAY           SEV DEFINED

PEDEST        0  REAR       0  DAYLGT        0  CLEAR       0  JAN.       0   SUN      0   1 AM      0 1 PM      0 (1)= KILLED
MV/TRAF       1  ANGL       1  DWN/DSK       0  FOGGY       0  FEB.       1   MON      0   2 AM      0 2 PM      0
MV/PRKD       1  HEAD       0  DRK-LGT       1  CLDY        0  MARCH      0   TUE      0   3 AM      0 3 PM      0 (2)= MAJOR INJURY
RR TR         0  OTHR       1  NO-LGTS       0  RAIN        1  APRIL      0   WED      0   4 AM      0 4 PM      1
ROR/HFO       0                NO SPEC       1  SNOW        0  MAY        0   THR      1   5 AM      0 5 PM      0 (3)= MINOR INJURY
BICYCLE       0                                 SLEET       0  JUNE       0   FRI      0   6 AM      0 6 PM      0
EVRTKND       0                                 N-SPC       1  JULY       0   SAT      1   7 AM      0 7 PM      0 (4)= INJURY NOT
ROR/NC        0                                                AUG.       1   N-S      0   8 AM      0 8 PM      0       VISIBLE
HFO/SS1       0                                                SEPT.      0                9 AM      0 9 PM      0
OTHER         0                                                OCT.       0                10AM      0 10PM      0 (5)= NOT SPECIFIED
NO SPEC       0                                                NOV.       0                11AM      0 11PM      1
                                                               DEC.       0                12NN      0 12MD      0
                                                               N-SPC      0                            N-SP      0

TYPE OF VEHICLE COUNTS

 PASSENGER CARS           1
 TRUCKS                   0
 TRAILERS                 0
 TAXI                     0
 HANDICAP                 0
 MOTORCYCLE               0
 EMERGENCY                0
 NOT SPEC. REG.           1
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                                        COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                PAGE    1
                                        DEPARTMENT OF PUBLIC WORKS                 FOR PERIOD
                                        TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                  REPORT DATE 06/26/86

    BOSTON                  N  N  K                      INTERSECTION AT C1-4166 AND C2-4226    MAVERICK @ BORDER
                            O  O  I
                T        H  .  .  L
                Y        O  V  I  L                     COLLISION MOTIONS                                                      ENVIRONMENTAL CONDITIONS
  LOC CASE      P        U  E  N  E  COLL     COLL  ************************** PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
  NO.  NO.      E DATE   R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL  LIGHT    WEATH  SURF  ROADWAY
  *** ******    * ***** ** ** ** ** *******   ****  *******  *******  *******  ********** ********* *******  *******  *****  ****  *******

                                                    PA. CAR  PA. CAR
  001 391724 P 06260 17  2  0  0 MV/PRKD  REAR  PARKED   SKIDING            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                  (EB) C1-4166 26 MAVERICK ST    (EB) C2-4226 AT BORDER                            VEH DIR =    N

  001 171024 P 12317 24  2  0  0 MV/TRAF  OTHR  STRAGHT  STRAGHT            NO SPEC    NO SPEC   NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4166 MAVERICK ST       (EB) C2-4226 AT BORDER ST                         VEH DIR =

  NUMBER OF ACCIDENTS      2


  FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4166 AND C2-4226 IN BOSTON     MAVERICK @ BORDER
   FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000    PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   INJURY ACCIDENTS  = 000000                            PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   POD * ACCIDENTS   = 000002                                                       * POD = PROPERTY DAMAGE ONLY
                       ------                                           ------
   TOTAL ACCIDENTS   = 000002                            TOTAL INJURIES = 000000

    COLL WITH        COLL TYPE     LIGHT COND        WEATH COND       MONTH         DAY OF WK          HOUR OF DAY               SEV DEFINED

  PEDEST       0   REAR      1   DAYLGT      1   CLEAR      2   JAN.       0   SUN      0   1 AM      0   1 PM     0 (1)= KILLED
  MV/TRAF      1   ANGL      0   DWN/DSK     0   FOGGY      0   FEB.       0   MON      0   2 AM      0   2 PM     0
  MV/PRKD      1   HEAD      0   DRK-LGT     1   CLDY       0   MARCH      0   TUE      0   3 AM      0   3 PM     0 (2)= MAJOR INJURY
  RR TR        0   OTHR      1   NO-LGTS     0   RAIN       0   APRIL      0   WED      0   4 AM      0   4 PM     0
  ROR/HFO      0                 NO SPEC     0.  SNOW       0   MAY        0   THR      1   5 AM      0   5 PM     1 (3)= MINOR INJURY
  BICYCLE      0                                 SLEET      0   JUNE       1   FRI      0   6 AM      0   6 PM     0
  OVRTRND      0                                 N-SPC      0   JULY       0   SAT      1   7 AM      0   7 PM     0 (4)= INJURY NOT
  ROR/NC       0                                                AUG.       0   N-S      0   8 AM      0   8 PM     0        VISIBLE
  HED/SSI      0                                                SEPT.      0                9 AM      0   9 PM     0
  OTHER        0                                                OCT.       0                10AM      0   10PM     0 (5)= NOT SPECIFIED
  NO SPEC      0                                                NOV.       0                11AM      0   11PM     0
                                                                DEC.       1                12NN      0   12MO     1
                                                                N-SPC      0                              N-SP     0

  TYPE OF VEHICLE COUNTS

   PASSENGER CARS         2
   TRUCKS                 0
   TRAILERS               0
   TAXI                   0
   HANDICAP               0
   MOTORCYCLE             0
   EMERGENCY              0
   NOT SPEC. REG.         0
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                                       DEPARTMENT OF PUBLIC WORKS                    FOR PERIOD                           PAGE    1
                                       TRAFFIC ENGINEERING SECTION             01/01/75 THRU 12/31/80                 REPORT DATE 06/26/86

  BOSTON                   N  N  K                      INTERSECTION AT C1-4226 AND C2-4166     BORDER @ MAVERICK
                           O  O  I
              T         H  .  .  L
              Y         O  V  I  L                  COLLISION MOTIONS                                                       ENVIRONMENTAL CONDITIONS
 LOC CASE     P         U  E  N  E  COLL      COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ********************************
 NO.  NO.     E DATE    R  H  J  D  WITH      TYPE   VEH 1    VEH 2    VEH 3    ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******   * *****  ** ** ** ** *******    ****  *******  *******  *******  ********** ********* *******  *******  *****  ****  *******

                                                    NOTSPEC  NOTSPEC
 001 084768   P 10300  15  2  0  0 MV/TRAF    OTHR  NO SPEC  NO SPEC            NU SPEC    NO SPEC   NO TCD   NO SPEC  N-SPC  OTHR  NO SPEC
                                  (EB) C1-4226 BORDER              (EB) C2-4166 AT MAVERICK ST                  VEH DIR =

 NUMBER OF ACCIDENTS       1

 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4226 AND C2-4166 IN BOSTON     BORDER @ MAVERICK

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  PDO * ACCIDENTS  = 000001                                                    * PDO = PROPERTY DAMAGE ONLY
                     ------                                           ------
  TOTAL ACCIDENTS  = 000001                           TOTAL INJURIES = 000000

  COLL WITH         COLL TYPE      LIGHT COND        WEATH COND         MONTH         DAY OF WK         HOUR OF DAY               SEV DEFINED

 PEDEST      0   REAR       0   DAYLGT      0   CLEAR      0   JAN.       0   SUN      0    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF     1   ANGL       0   DWN/DSK     0   FOGGY      0   FEB.       0   MON      0    2 AM    0   2 PM    0
 MV/PRKD     0   HEAD       0   DRK-LGT     0   CLDY       0   MARCH      0   TUE      0    3 AM    0   3 PM    1 (2)= MAJOR INJURY
 RR TR       0   OTHR       1   NO-LGTS     0   RAIN       0   APRIL      0   WED      0    4 AM    0   4 PM    0
 FOP/HFO     0                  NO SPEC     1   SNOW       0   MAY        0   THR      1    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                  SLEET      0   JUNE       0   FRI      0    6 AM    0   6 PM    0
 OVRTRND     0                                  N-SPC      1   JULY       C   SAT      0    7 AM    C   7 PM    0 (4)= INJURY NOT
 POR/NC      0                                                 AUG.       0   N-S      0    8 AM    0   8 PM    0        VISIBLE
 HFO/SSI     0                                                 SEPT.      0                 9 AM    0   9 PM    0
 OTHER       0                                                 OCT.       1                10AM     0  10PM     0 (5)= NOT SPECIFIED
 NO SPEC     0                                                 NOV.       0                11AM     0  11PM     0
                                                               DEC.       0                12NN     0  12MD     0
                                                               N-SPC      0                           N-SP     0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS       0
  TRUCKS               0
  TRAILERS             0
  TAXI                 0
  HANDICAP             0
  MOTORCYCLE           0
  EMERGENCY            0
  NOT SPEC. REG.       2
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                                   COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                  PAGE    1
                                   DEPARTMENT OF PUBLIC WORKS                 FOR PERIOD
                                   TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                 REPORT DATE 06/26/86

   BOSTON                     N  N  K                        INTERSECTION AT C1-4166 AND C2-4223     MAVERICK @ MERIDIAN
                              C  O  I
                T          H  .  .  L                                                                     ENVIRONMENTAL CONDITIONS
                Y          O  V  I  L                   COLLISION MOTIONS                                 *****************************
  LOC CASE      P          U  E  N  E  COLL     COLL  *************************  PEDESTRIAN  VEHICLE   TRAFFIC
  NO.  NO.      E DATE     R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT    WEATH  SURF  ROADWAY
  *** ******    * *****   ** ** ** ** *******   ****  *******  *******  *******  ********** ********* *******   *******  *****  ****  *******

  001 300285 P 05119 13  2  0  0 MV/TRAF  ANGL  BACKING  NO SPEC                 NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST         (EB) C2-4223 AT MERDIAN ST                             VEH DIR = S N

  001 061104 I 10299 24  2  1  0 MV/TRAF  REAR  RT TURN  PARKED                  NO SPEC    NO SPEC    NO TCD   NO-LGTS  RAIN   WET   H-P-B
                                 (EB) C1-4166 MAVERICK            (EB) C2-4223 AT MERIDIAN                               VEH DIR = N

  001 62793K I 11206 01  2  3  0 MV/TRAF  HEAD  STRAGHT  STRAGHT                 NO SPEC    NO SPEC    NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST         (EB) C2-4223 AT MERIDIAN ST                            VEH DIR = N E

  001 056386 P 02228 13  2  0  0 MV/TRAF  ANGL  RT TURN  STRAGHT                 NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO SPEC
                                 (EB) C1-4166 MAVERICK ST         (EB) C2-4223 AT MERIDIAN ST                            VEH DIR =

  001 109258 P 12129 17  2  0  0 MV/TRAF  HEAD  RT TURN  PASS/LT                 NO SPEC    NO SPEC    NO TCD   DWN/DSK  CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST         (EB) C2-4223 AT MERIDIAN ST                            VEH DIR =

  NUMBER OF ACCIDENTS     5


  FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4166 AND C2-4223 IN BOSTON     MAVERICK @ MERIDIAN
   FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   INJURY ACCIDENTS = 000002                           PEOPLE INJURED = 000004  SEV (1)=   0 (2)=   1 (3)=   1 (4)=   1 (5)=   1

   PDO * ACCIDENTS  = 000003                                                    * PDO = PROPERTY DAMAGE ONLY
                      ------                                       ------
   TOTAL ACCIDENTS  = 000005                           TOTAL INJURIES = 000004

    COLL WITH       COLL TYPE     LIGHT COND      WEATH COND       MONTH         DAY OF WK          HOUR OF DAY             SEV DEFINED

  PEDEST      0    REAR      1   DAYLGT     2   CLEAR     4   JAN.      0   SUN     1     1 AM     1   1 PM    2 (1)= KILLED
  MV/TRAF     5    ANGL      2   DWN/DSK    1   FOGGY     0   FEB.      1   MON     1     2 AM     0   2 PM    0
  MV/PRKD     0    HEAD      2   DRK-LGT    1   CLDY      0   MARCH     0   TUE     0     3 AM     0   3 PM    0 (2)= MAJOR INJURY
  RR TR       0    OTHR      0   NO-LGTS    1   RAIN      1   APRIL     0   WED     2     4 AM     0   4 PM    0
  POR/HFD     0                  NO SPEC    0   SNOW      0   MAY       1   THR     0     5 AM     0   5 PM    1 (3)= MINOR INJURY
  BICYCLE     0                                 SLEET     0   JUNE      0   FRI     0     6 AM     0   6 PM    0
  OVRTRND     0                                 N-SPC     0   JULY      0   SAT     1     7 AM     0   7 PM    0 (4)= INJURY NOT
  POR/NC      0                                               AUG.      0   N-S     0     8 AM     0   8 PM    0         VISIBLE
  HFD/SSI     0                                               SEPT.     0                 9 AM     0   9 PM    0
  OTHER       0                                               OCT.      1                 10AM     0   10PM    0 (5)= NOT SPECIFIED
  NO SPEC     0                                               NOV.      1                 11AM     0   11PM    0
                                                              DEC.      1                 12NN     0   12MD    1
                                                              N-SPC     0                              N-SP    0

  TYPE OF VEHICLE COUNTS

   PASSENGER CARS          0
   TRUCKS                  0
   TRAILERS                )
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                          COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                      PAGE    1
                          DEPARTMENT OF PUBLIC WORKS                   FOR PERIOD
                          TRAFFIC ENGINEERING SECTION          01/01/75  THRU 12/31/80                   REPORT DATE 06/26/86

  BOSTON                     N  N  K                       INTERSECTION AT C1-4223 AND C2-4166
                             U  O  I
               T          H  .  .  L
               Y          O  V  I  L               COLLISION MOTIONS                                           ENVIRONMENTAL CONDITIONS
 LOC CASE      P          U  E  N  E COLL     COLL *************************** PEDESTRIAN  VEHICLE  TRAFFIC  *************************
 NO.  NO.      E DATE     R  H  J  D WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******    * *****   ** ** ** ** *******  ****  *******  *******  *******  **********  ********* *******  ******* *****  ****  *******

 001 00612C 1 01145 10  2  2  0 MV/TRAF  ANGL  STRAGHT  STRAGHT             NO SPEC    NO SPEC   NO TCD   DAYLGT   RAIN   WET   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR =

 001 05033D P 07305 20  2  0  0 MV/TRAF  ANGL  STRAGHT  STRT/PK             NO SPEC    NO SPEC   NO TCD   DWN/DSK  CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR =

 001 53824J P 04176 03  2  0  0 MV/TRAF  ANGL  RT TURN  U TURN              NO SPEC    NO SPEC   NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR = N S

 001 84514J P 06306 19  2  0  0 MV/TRAF  ANGL  RT TURN  PASS/LT             NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR = W W

 001 01584I P 03187 15  2  0  0 MV/TRAF  REAR  STRAGHT  STRAGHT             NO SPEC    NO SPEC   NO TCD   DAYLGT   SNOW   WET   NO DFCT
                                 (EB) C1-4223 MERIDIAN ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR = N N

 NUMBER OF ACCIDENTS     5


 FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4223 AND C2-4166 IN BOSTON

   FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   INJURY ACCIDENTS = 000001                           PEOPLE INJURED = 000002  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    2 (5)=    0

   PDD * ACCIDENTS  = 000004                                                  * PDD = PROPERTY DAMAGE ONLY
                      ------                                        ------
   TOTAL ACCIDENTS  = 000005                           TOTAL INJURIES = 000002

   COLL WITH        COLL TYPE      LIGHT COND       WEATH COND        MONTH         DAY OF WK         HOUR OF DAY              SEV DEFINED

  PEDEST      0   REAR      1   DAYLGT     3   CLEAR      3   JAN.     1    SUN     0    1 AM    0   1 PM    0 (1)= KILLED
  MV/TRAF     5   ANGL      4   DWN/DSK    1   FOGGY      0   FEB.     0    MON     0    2 AM    0   2 PM    0
  MV/PRKD     0   HEAD      0   DRK-LGT    1   CLDY       0   MARCH    1    TUE     1    3 AM    1   3 PM    1 (2)= MAJOR INJURY
  PR TR       0   OTHR      0   NO-LGTS    0   RAIN       1   APRIL    1    WED     2    4 AM    0   4 PM    0
  ROR/HFO     0                 NO SPEC    0   SNOW       1   MAY      0    THR     0    5 AM    0   5 PM    0 (3)= MINOR INJURY
  BICYCLE     0                                SLEET      0   JUNE     1    FRI     1    6 AM    0   6 PM    0
  OVRTRND     0                                N-SPC      0   JULY     1    SAT     1    7 AM    0   7 PM    1 (4)= INJURY NOT
  ROR/NC      0                                               AUG.     0    N-S     0    8 AM    0   8 PM    1        VISIBLE
  HFO/SSI     0                                               SEPT.    0                 9 AM    0   9 PM    0
  OTHER       0                                               OCT.     0                10AM     1  10PM     0 (5)= NOT SPECIFIED
  NO SPEC     0                                               NOV.     0                11AM     0  11PM     0
                                                              DEC.     0                12NN     0  12MD     0
                                                              N-SPC    0                            N-SP     0

  TYPE OF VEHICLE COUNTS

   PASSENGER CARS          0
   TRUCKS                  0
   TRAILERS                1
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MERIDIAN @ MAVERICK

MERIDIAN @ MAVERICK

E-18

Maverick @ Chelsea

E-19

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FOR PERIOD 01/01/75 THRU 12/31/80    (INTERSECTION AT C1-4166 AND C2-3982 IN BOSTON
  FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=     0 (3)=     0 (4)=     0 (5)=     0

  INJURY ACCIDENTS = 000005                             PEOPLE INJURED = 000007  SEV (1)=    0 (2)=     0 (3)=     1 (4)=     4 (5)=     2

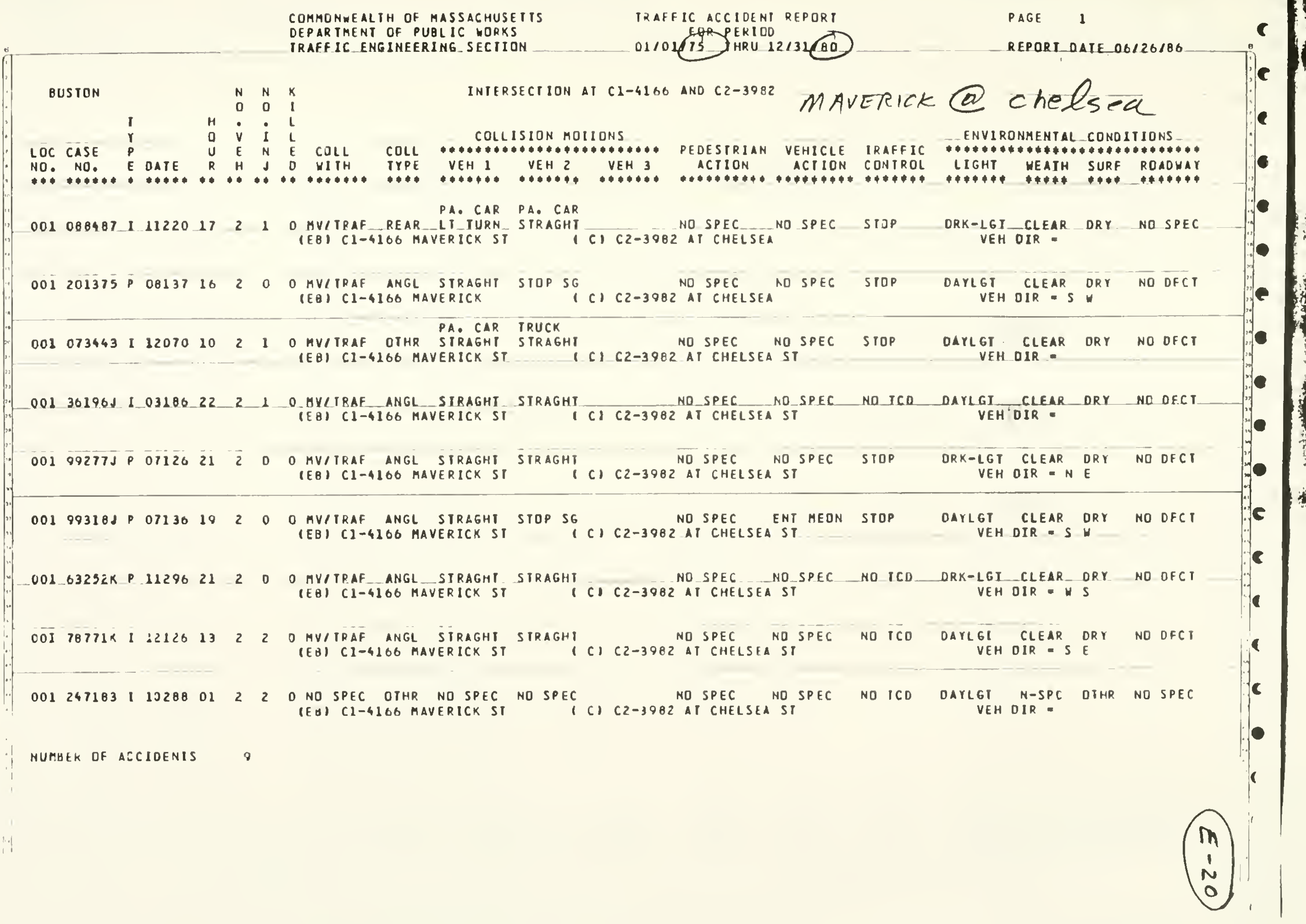
  PDD * ACCIDENTS   = 000004                                                          * PDD = PROPERTY DAMAGE ONLY
                      ------                                                 ------
  TOTAL ACCIDENTS   = 000009                            TOTAL INJURIES = 000007

   COLL WITH         COLL TYPE       LIGHT COND         WEATH COND           MONTH          DAY OF WK           HOUR OF DAY                SEV DEFINED

 PEDEST       0    REAR      1     DAYLGT      6     CLEAR       8     JAN.       0      SUN     2      1 AM      1   1 PM      1 (1)= KILLED
 MV/TRAF      8    ANGL      6     DWN/DSK     0     FOGGY       0     FEB.       0      MON     2      2 AM      0   2 PM      0
 MV/PRKD      0    HEAD      0     DRK-LGT     3     CLDY        0     MARCH      1      TUE     1      3 AM      0   3 PM      0 (2)= MAJOR INJURY
 RR TR        0    OTHR      2     NO-LGTS     0     RAIN        0     APRIL      0      WED     0      4 AM      0   4 PM      1
 ROR/HFO      0                    NO SPEC     0     SNOW        0     MAY        0      THR     1      5 AM      0   5 PM      1 (3)= MINOR INJURY
 BICYCLE      0                                      SLEET       0     JUNE       0      FRI     0      6 AM      0   6 PM      0
 OVRTRND      0                                      N-SPC       1     JULY       2      SAT     3      7 AM      0   7 PM      1 (4)= INJURY NOT
 ROR/NC       0                                                        AUG.       1      N-S     0      8 AM      0   8 PM      0         VISIBLE
 HFO/SSI      0                                                        SEPT.      0                     9 AM      0   9 PM      2
 OTHER        0                                                        OCT.       1                    10AM       1  10PM       1 (5)= NOT SPECIFIED
 NO SPEC      1                                                        NOV.       2                    11AM       0  11PM       0
                                                                       DEC.       2                    12NN       0  12MD       0
                                                                       N-SPC      0                                  N-SP       0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS          3
  TRUCKS                  1
  TRAILERS                0
  TAXI                    0
  HANDICAP                0
  MOTORCYCLE              0
  EMERGENCY               0
  NOT SPEC. REG.          0
```



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                                COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                 PAGE    1
                                DEPARTMENT OF PUBLIC WORKS               FOR PERIOD
                                TRAFFIC ENGINEERING SECTION          01/01/75  THRU 12/31/80                 REPORT DATE 06/26/86

  BOSTON                  N  N  K                    INTERSECTION AT C1-4166 AND C2-3982    MAVERICK @ chelsea
                          O  O  I
          T            H  .  .  L
          Y            O  V  I  L                     COLLISION MOTIONS                                          ENVIRONMENTAL CONDITIONS
LOC CASE  P            U  E  N  E  COLL     COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ***************************
NO.  NO.  E DATE       R  H  J  D  WITH     TYPE   VEH 1   VEH 2   VEH 3      ACTION      ACTION  CONTROL   LIGHT  WEATH SURF ROADWAY
*** ****** * *****    ** ** ** ** *******   ****  ******* ******* *******  ********** ********* *******  ******* ***** **** *******

                                                   PA. CAR PA. CAR
001 088487 I 11220 17  2  1  0 MV/TRAF  REAR  LT TURN STRAGHT          NO SPEC    NO SPEC    STOP     DRK-LGT CLEAR DRY  NO SPEC
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA                  VEH DIR =

001 201375 P 08137 16  2  0  0 MV/TRAF  ANGL  STRAGHT STOP SG          NO SPEC    NO SPEC    STOP     DAYLGT  CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK         ( C) C2-3982 AT CHELSEA                  VEH DIR = S W
                                                   PA. CAR TRUCK
001 073443 I 12070 10  2  1  0 MV/TRAF  OTHR  STRAGHT STRAGHT          NO SPEC    NO SPEC    STOP     DAYLGT  CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR =

001 36196J I 03186 22  2  1  0 MV/TRAF  ANGL  STRAGHT STRAGHT          NO SPEC    NO SPEC    NO TCD   DAYLGT  CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR =

001 99277J P 07126 21  2  0  0 MV/TRAF  ANGL  STRAGHT STRAGHT          NO SPEC    NO SPEC    STOP     DRK-LGT CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR = N E

001 99318J P 07136 19  2  0  0 MV/TRAF  ANGL  STRAGHT STOP SG          NO SPEC    ENT MEDN   STOP     DAYLGT  CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR = S W

001 63252K P 11296 21  2  0  0 MV/TRAF  ANGL  STRAGHT STRAGHT          NO SPEC    NO SPEC    NO TCD   DRK-LGT CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR = W S

001 78771K I 12126 13  2  2  0 MV/TRAF  ANGL  STRAGHT STRAGHT          NO SPEC    NO SPEC    NO TCD   DAYLGT  CLEAR DRY  NO DFCT
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR = S E

001 247183 I 10288 01  2  2  0 NO SPEC  OTHR  NO SPEC NO SPEC          NO SPEC    NO SPEC    NO TCD   DAYLGT  N-SPC OTHR NO SPEC
                                (EB) C1-4166 MAVERICK ST      ( C) C2-3982 AT CHELSEA ST               VEH DIR =

NUMBER OF ACCIDENTS     9
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                                 COMMONWEALTH OF MASSACHUSETTS       TRAFFIC ACCIDENT REPORT              PAGE    1
                                 DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                                 TRAFFIC ENGINEERING SECTION         01/01/75 THRU 12/31/80              REPORT DATE 06/26/86

  BOSTON               N  N  K                       INTERSECTION AT C1-3982 AND C2-4166
                       U  O  I
           T        H  .  .  L
           Y        O  V  1  L                    COLLISION MOTIONS                                             ENVIRONMENTAL CONDITIONS
 LOC CASE  P        U  E  N  E  COLL    COLL  ************************* PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.  E DATE   R  H  J  D  WITH    TYPE   VEH 1    VEH 2    VEH 3    ACTION     ACTION   CONTROL  LIGHT   WEATH  SURF ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  *******  *******  ******* ********** ********* *******  ******* *****  **** *******

 001 052779 I 09049 19  2  1  0 MV/TRAF  REAR  PARKED   PARKING           NO SPEC    NO SPEC   NO TCD   DWN/DSK  CLEAR  DRY  NO DFCT
                               ( C) C1-3982 CHELSEA ST          (EB) C2-4166 AT MAVERICK                     VEH DIR = E E

 001 718880 P 11065 10  2  0  0 MV/PRKD  ANGL  PARKED   BACKING           NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY  NO DFCT
                               ( C) C1-3962 CHELSEA ST          (EB) C2-4166 AT MAVERICK ST                  VEH DIR =

 001 050677 P 07098 06  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT           NO SPEC    NO SPEC   STOP     DAYLGT   CLEAR  DRY  NO DFCT
                               ( C) C1-3982 CHELSEA ST          (EB) C2-4166 AT MAVERICK ST                  VEH DIR = S W

 001 117513 I 07128 17  2  1  0 NO SPEC  OTHR  NO SPEC  NO SPEC           NO SPEC    NO SPEC   NO TCD   NO SPEC  N-SPC  OTHR NO SPEC
                               ( C) C1-3982 CHELSEA             (EB) C2-4166 AT MAVERICK ST                  VEH DIR = N

 001 011094 I 08089 17  2  1  0 MV/PRKD  ANGL  PARKED   PASS/LT           ON/OFF VEH NO SPEC   STOP     DAYLGT   CLEAR  DRY  NO DFCT
                               ( C) C1-3982 CHELSEA ST          (EB) C2-4166 0025 FEET N OF MAVERICK ST      VEH DIR = S S

 NUMBER OF ACCIDENTS      5
 FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-3982 AND C2-4166 IN BOSTON

   FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   INJURY ACCIDENTS   = 000003                           PEOPLE INJURED = 000003  SEV (1)=    0 (2)=    0 (3)=    2 (4)=    1 (5)=    0

   PDD * ACCIDENTS    = 000002                                        * PDD = PROPERTY DAMAGE ONLY
                        ------                                ------
   TOTAL ACCIDENTS    = 000005                  TOTAL INJURIES = 000003

   COLL WITH        COLL TYPE       LIGHT COND       WEATH COND        MONTH         DAY OF WK        HOUR OF DAY              SEV DEFINED

 PEDEST      0    REAR      1    DAYLGT      3    CLEAR      4    JAN.       0    SUN      1    1 AM    0  1 PM    0 (1)= KILLED
 MV/TRAF     2    ANGL      3    DWN/DSK     1    FOGGY      0    FEB.       0    MON      0    2 AM    0  2 PM    0
 MV/PRKD     2    HEAD      0    DRK-LGT     0    CLDY       0    MARCH      0    TUE      1    3 AM    0  3 PM    0 (2)= MAJOR INJURY
 RR TR       0    OTHR      1    NO-LGTS     0    RAIN       0    APRIL      0    WED      2    4 AM    0  4 PM    0
 ROR/HFO     0                   NO SPEC     1    SNOW       0    MAY        0    THR      1    5 AM    0  5 PM    2 (3)= MINOR INJURY
 BICYCLE     0                                    SLEET      0    JUNE       0    FRI      0    6 AM    1  6 PM    0
 OVRTRND     0                                    N-SPC      1    JULY       2    SAT      0    7 AM    0  7 PM    1 (4)= INJURY NOT
 ROR/NC      0                                                      AUG.       1    N-S      0    8 AM    0  8 PM    0        VISIBLE
 HFO/SSI     0                                                      SEPT.      1                   9 AM    0  9 PM    0
 OTHER       0                                                      OCT.       0                   10AM    1  10PM    0 (5)= NOT SPECIFIED
 NO SPEC     1                                                      NOV.       1                   11AM    0  11PM    0
                                                                    DEC.       0                   12NN    0  12MD    0
                                                                    N-SPC      0                              N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS          0
  TRUCKS                  0
  TRAILERS                0
  TAXI                    0
  HANDICAP                0
  MOTORCYCLE              0
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Chelsea @ Maverick

Chelsea + Maverick

E-21

Maverick @ Orleans

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                                              TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                  REPORT DATE 06/26/86

  BOSTON                 N  N  K                                 INTERSECTION AT C1-4166 AND C2-4179
                         O  O  I
             T        H  .  .  L
             Y        O  V  1  L                       COLLISION MOTIONS                                             ENVIRONMENTAL CONDITIONS
 LOC CASE    P        U  E  N  E  COLL     COLL  ************************* PEDESTRIAN  VEHICLE   TRAFFIC  ***************************
 NO.  NO.    E DATE   R  H  J  O  WITH     TYPE   VEH 1   VEH 2    VEH 3     ACTION     ACTION   CONTROL  LIGHT   WEATH  SURF  ROADWAY
 *** ******  * ***** ** ** ** ** *******   ****  ******* *******  *******  **********  *********  ******  ******* *****  ****  *******

 001 039866  1 11039 15  2  1  0 MV/TRAF   ANGL  STRAGHT STRAGHT           NO SPEC     NO SPEC    NO TCD   DRK-LGT  RAIN  WET   NO DFCT
                                 (EB) C1-4166 MAVERICK     (EB) C2-4179 AT ORLEAN ST                          VEH DIR = E N

 001 204332  P 07117 15  2  0  0 MV/TRAF   ANGL  STRAGHT STRAGHT           NO SPEC     NO SPEC    STOP     DAYLGT   CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK     (EB) C2-4179 AT ORLEANS                            VEH DIR =

 001 120218  P 04228 20  2  0  0 MV/TRAF   ANGL  STRAGHT STOP SG           NO SPEC     NO SPEC    STOP     DRK-LGT  CLEAR DRY   H-R-B
                                 (EB) C1-4166 MAVERICK     (EB) C2-4179 AT ORLEANS                            VEH DIR =
                                                 TRUCK   PA. CAR  TRAILER
 001 338192  P 04080 02  4  0  0 MV/PRKD   ANGL  PARKED  PARKED   LT TURN  NO SPEC     NO SPEC    NO TCD   DRK-LGT  CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR =     N
                                                 TRUCK   PA. CAR
 C01 061468  P 09250 15  2  0  0 MV/PRKD   OTHR  STRT/PK PARKED            NO SPEC     NO SPEC    NO TCD   DAYLGT   CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR =
                                                 PA. CAR PA. CAR
 001 092194  I 10230 10  2  1  0 MV/TRAF   ANGL  STRAGHT LT TURN           NO SPEC     NO SPEC    STOP     DRK-LGT  CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = W N

 001 38873C  P 03215 21  2  0  0 MV/PRKD   HEAD  PARKED  STRAGHT           NO SPEC     NO SPEC    NO TCD   DRK-LGT  CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR =

 001 893450  P 12025 17  2  0  0 MV/PPKD   ANGL  PARKED  STRAGHT           NO SPEC     NO SPEC    NO TCD   DRK-LGT  CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR =

 001 045124  P 02127 19  2  0  0 MV/TRAF   ANGL  STRAGHT STRAGHT           NO SPEC     NO SPEC    STOP     DRK-LGT  CLDY  WET   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = W N

 001 096557  I 12237 13  1  1  0 PEDEST    OTHR  STRAGHT                   AT INTER    NO SPEC    NO TCD   DAYLGT   CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = W

 001 061163  P 01058 21  2  0  0 MV/TRAF   ANGL  STRAGHT OTHER             NO SPEC     NO SPEC    STOP     DRK-LGT  CLEAR WET   OTHER
                                 (EB) C1-4166 MAVRICK ST   (EB) C2-4179 AT ORLEANS ST                         VEH DIR = E N

 001 092454  P 01068 21  2  0  0 MV/TRAF   ANGL  STRAGHT STRAGHT           NO SPEC     NO SPEC    STOP     DRK-LGT  CLEAR SNOW  NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = W N
 001 120097  P 05129 20  2  0  0 MV/TRAF   REAR  STRAGHT STRAGHT           NO SPEC     NO SPEC    NO TCD   DAYLGT   CLEAR DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = W W

 001 047147  P 10027 24  3  0  0 MV/TRAF   ANGL  STRAGHT STRAGHT  PARKED   NO SPEC     NO SPEC    NO TCO   DRK-LGT  RAIN  WET   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = N W

 001 113450  P 11029 22  2  0  0 MV/TRAF   ANGL  STRAGHT STRAGHT           NO SPEC     NO SPEC    NO TCD   DRK-LGT  CLDY  WET   NO DFCT
                                 (EB) C1-4166 MAVERICK ST  (EB) C2-4179 AT ORLEANS ST                         VEH DIR = E N
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4166 AND C2-4179 IN BOSTON   Maverick @ Orleans

 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 INJURY ACCIDENTS = 000003                           PEOPLE INJURED = 000003  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    3 (5)=    0

 PDO * ACCIDENTS  = 000012                                                     * PDO = PROPERTY DAMAGE ONLY
                    ------                                  ------
 TOTAL ACCIDENTS  = 000015                           TOTAL INJURIES = 000003

  COLL WITH         COLL TYPE       LIGHT COND        WEATH COND         MONTH         DAY OF WK          HOUR OF DAY              SEV DEFINED

 PEDEST       1   REAR      1   DAYLGT       4   CLEAR      11   JAN.        2   SUN      0   1 AM    0  1 PM    1 (1)= KILLED
 MV/TRAF     10   ANGL     11   DWN/DSK      0   FOGGY       0   FEB.        1   MON      1   2 AM    1  2 PM    0
 MV/PRKD      4   HEAD      1   DRK-LGT     11   CLDY        2   MARCH       1   TUE      4   3 AM    0  3 PM    3 (2)= MAJOR INJURY
 RR TR        0   OTHR      2   NO-LGTS      0   RAIN        2   APRIL       2   WED      0   4 AM    0  4 PM    0
 ROR/HFO      0                 NO SPEC      0   SNOW        0   MAY         0   THR      3   5 AM    0  5 PM    1 (3)= MINOR INJURY
 BICYCLE      0                                  SLEET       0   JUNE        1   FRI      4   6 AM    0  6 PM    0
 OVRTRND      0                                  N-SPC       0   JULY        1   SAT      3   7 AM    0  7 PM    1 (4)= INJURY NOT
 ROR/NC       0                                                  AUG.        0   N-S      0   8 AM    0  8 PM    2        VISIBLE
 HED/SSI      0                                                  SEPT.       1                9 AM    0  9 PM    3
 OTHER        0                                                  OCT.        2               10AM     1 10PM     1 (5)= NOT SPECIFIED
 NO SPEC      0                                                  NOV.        2               11AM     0 11PM     0
                                                                 DEC.        2               12NN     0 12MD     1
                                                                 N-SPC       0                          N-SP     0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS         4
  TRUCKS                 2
  TRAILERS               1
  TAXI                   0
  HANDICAP               0
  MOTORCYCLE             0
  EMERGENCY              0
  NOT SPEC. REG.         0
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                                                DEPARTMENT OF PUBLIC WORKS                                                  PAGE    1
                                                TRAFFIC ENGINEERING SECTION              FOR PERIOD
                                                                                    01/01/75 THRU 12/31/80          REPORT DATE 06/26/86

    BOSTON                N  N  K                        INTERSECTION AT C1-4179 AND C2-4166     Orleans @ Maverick
                          O  O  I
              T        H  .  .  L
              Y        O  V  I  L                   COLLISION MOTIONS                                              ENVIRONMENTAL CONDITIONS
 LOC CASE     P        U  E  N  E  COLL     COLL  *************************  PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.     E DATE   R  N  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******   * ***** ** ** ** ** *******   ****  *******  *******  *******  ********** ********* *******  ******* *****  ****  *******

                                                   PA. CAR  NOTSPEC
 001 051556   P 09140 07  2  0  0 MV/PRKD   ANGL   STRAGHT  PARKED             NO SPEC    NO SPEC   NO TCD   DWN/DSK  CLDY   DRY   H-R-B
                                  (EB) C1-4179 ORLEANS ST        (EB) C2-4166 0012 FEET   OF MAVERICK              VEH DIR =

                                                   PA. CAR  PA. CAR
 001 087110   P 10090 00  2  0  0 MV/PRKD   OTHR   LT TURN  PARKED             NO SPEC    NO SPEC   NO TCD   NO SPEC  N-SPC  OTHR  NO SPEC
                                  (EB) C1-4179 ORLEANS           (EB) C2-4166 AT MAVERICK                          VEH DIR =

 001 716650   I 11015 13  2  2  0 MV/PRKD   ANGL   PARKED   STRAGHT            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO SPEC
                                  (EB) C1-4179 ORLEAN            (EB) C2-4166 AT MAVERICK                          VEH DIR =

                                                   PA. CAR  PA. CAR
 001 336330   P 03020 22  2  0  0 MV/TRAF   ANGL   STOP SG  STRAGHT            NO SPEC    NO SPEC   STOP     DRK-LGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4179 ORLEANS ST        (EB) C2-4166 AT MAVERICK ST                       VEH DIR = N E

                                                   PA. CAR
 001 016178   I 09090 20  1  2  0 BICYCLE   OTHR   STRAGHT                     NO SPEC    NO SPEC   STOP     DRK-LGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4179 ORLEANS ST        (EB) C2-4166 AT MAVERICK ST                       VEH DIR =

 001 01595C   P 01285 17  3  0  0 MV/TRAF   ANGL   STRAGHT  STRAGHT  NO SPEC   NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                  (EB) C1-4179 ORLEANS ST        (EB) C2-4166 AT MAVERICK ST                       VEH DIR =

 001 54966C   P 04115 17  2  0  0 MV/TRAF   ANGL   STRAGHT  STRAGHT            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                  (EB) C1-4179 ORLEANS ST        (EB) C2-4166 AT MAVERICK ST                       VEH DIR =

 001 54354J   P 04296 19  2  0  0 MV/TRAF   ANGL   SLOWING  LT TURN            NO SPEC    NO SPEC   NO TCD   DWN/DSK  CLEAR  DRY   NO DFCT
      # Acc = 8                   (EB) C1-4179 ORLENES ST        (EB) C2-4166 AT MAVERICK ST                       VEH DIR = 4 S
 FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4179 AND C2-4166 IN BOSTON      Orleans + Maverick

  FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  INJURY ACCIDENTS  = 000002                           PEOPLE INJURED = 000004  SEV (1)=   0 (2)=   0 (3)=   1 (4)=   3 (5)=   0

  PDO * ACCIDENTS   = 000006                                                    * PDO = PROPERTY DAMAGE ONLY
                      ------                                     ------
  TOTAL ACCIDENTS   = 000008                           TOTAL INJURIES = 000004

   COLL WITH         COLL TYPE      LIGHT COND        WEATH COND        MONTH        DAY OF WK          HOUR OF DAY             SEV DEFINED

  PEDEST       0   REAR      0   DAYLGT       3   CLEAR     6   JAN.      1    SUN    2    1 AM    0   1 PM    1 (1)= KILLED
  MV/TRAF      4   ANGL      6   DWN/DSK      2   FOGGY     0   FEB.      0    MON    0    2 AM    0   2 PM    0
  MV/PRKD      3   HEAD      0   DRK-LGT      2   CLDY      1   MARCH     1    TUE    2    3 AM    0   3 PM    0 (2)= MAJOR INJURY
  RR TR        0   OTHR      2   NO-LGTS      0   RAIN      0   APRIL     2    WED    0    4 AM    0   4 PM    0
  FOR/HFO      0                 NO SPEC      1   SNOW      0   MAY       0    THR    2    5 AM    0   5 PM    2 (3)= MINOR INJURY
  BICYCLE      1    TYPE OF VEHICLE COUNTS    |   SLEET     0   JUNE      0    FRI    1    6 AM    0   6 PM    0
  OVRTRNL      0                                  N-SPC     1   JULY      0    SAT    1    7 AM    1   7 PM    1 (4)= INJURY NOT
  ROF/NC       0     PASSENGER CARS         6                   AUG.      0    N-S    0    8 AM    0   8 PM    1        VISIBLE
  HFO/SSI      0     TRUCKS                 0                   SEPT.     2                9 AM    0   9 PM    0
  OTHER        0     TRAILERS               0                   OCT.      1                10AM    0   10PM    1 (5)= NOT SPECIFIED
  NO SPEC      0     TAXI                   0                   NOV.      1                11AM    0   11PM    0
                     HANDICAP               0                   DEC.      0                12NN    0   12MD    0
                     MOTORCYCLE             0                   N-SPC     0                            N-SP    1
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                              COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                  PAGE    1
                              DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                              TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80              REPORT DATE 06/26/86

 BOSTON                N N K                       INTERSECTION AT C1-4166 AND C2-4180
                       O O I
              T   H    . . L                                                                              ENVIRONMENTAL CONDITIONS
              Y   O    V I L                      COLLISION MOTIONS                                       ***************************
 LOC CASE     P   U    E N E  COLL     COLL  *************************** PEDESTRIAN  VEHICLE    TRAFFIC   LIGHT    WEATH  SURF  ROADWAY
 NO.  NO.     E DATE  R H J D  WITH    TYPE   VEH 1     VEH 2     VEH 3    ACTION      ACTION    CONTROL
 *** ******  * ***** ** ** ** ** ******* ****  *******   *******   *******  **********  *********  *******   *******  *****  ****  *******

 001 879830 P 06275 18  2  0  0 MV/TRAF  ANGL  STRAGHT   STRAGHT            NO SPEC    NO SPEC    NO TCO    DAYLGT   CLEAR  DRY   NO SPEC
                                 (EB) C1-4166 MAVERICK ST       (EB) C2-4180 AT COTTAGE                              VEH DIR =

 001 049556 P 03108 02  2  0  0 MV/PRKD  ANGL  PARKED    STRAGHT            NO SPEC    NO SPEC    NO TCO    DRK-LGT  N-SPC  OTHR  NO SPEC
                                 (EB) C1-4166 MAVERICK ST       (EB) C2-4180 AT COTTAGE                              VEH DIR =

 001 404440 P 03319 13  3  0  0 NO SPEC  OTHR  STRAGHT   STRAGHT  NO SPEC   NO SPEC    NO SPEC    NO TCO    DRK-LGT  RAIN   WET   NO DFCT
                                 (EB) C1-4166 MAVERICK          (EB) C2-4180 AT COTTAGE                              VEH DIR =

 001 896240 P 12065 16  2  0  0 MV/TRAF  ANGL  STRAGHT   STRAGHT            NO SPEC    NO SPEC    STOP      DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST       (EB) C2-4180 AT COTTAGE ST                           VEH DIR =

 001 299472 P 02109 02  2  0  0 MV/PRKD  ANGL  PARKED    LT TURN            NO SPEC    NO SPEC    NO TCO    DRK-LGT  CLEAR  OTHR  NO SPEC
                                 (EB) C1-4166 246 MAVERICK ST   (EB) C2-4180 AT COTTAGE ST                           VEH DIR =

 001 339342 P 03059 20  2  0  0 MV/TRAF  ANGL  PARKED    STRAGHT            NO SPEC    NO SPEC    NO TCO    DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST       (EB) C2-4180 AT COTTAGE ST                           VEH DIR = E E

 001 342594 I 03319 24  3  2  0 MV/TRAF  REAR  OTHER     STRAGHT  NO SPEC   NO SPEC    NO SPEC    NO TCO    DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4166 MAVERICK ST       (EB) C2-4180 AT COTTAGE ST                           VEH DIR = S S S
 FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4166 AND C2-4180 IN BOSTON

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000001                           PEOPLE INJURED = 000002  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    1 (5)=    1

  PDO * ACCIDENTS  = 000006                                                         * PDO = PROPERTY DAMAGE ONLY
                     ------                                          ------
  TOTAL ACCIDENTS  = 000007                           TOTAL INJURIES = 000002

   COLL WITH         COLL TYPE     LIGHT COND        WEATH COND       MONTH       DAY OF WK        HOUR OF DAY             SEV DEFINED

 PEDEST       0    REAR     1   DAYLGT     2     CLEAR     5   JAN.     0    SUN     0    1 AM    0  1 PM    1 (1)= KILLED
 MV/TRAF      4    ANGL     5   DWN/DSK    0     FLGGY     0   FEB.     1    MON     1    2 AM    2  2 PM    0
 MV/PRKD      2    HEAD     0   DRK-LGT    5     CLDY      0   MARCH    4    TUE     0    3 AM    0  3 PM    0 (2)= MAJOR INJURY
 FR TR        0    OTHR     1   NO-LGTS    0     RAIN      1   APRIL    0    WED     0    4 AM    0  4 PM    1
 FOR/HFU      0                 NO SPEC    0     SNOW      0   MAY      0    THR     0    5 AM    0  5 PM    0 (3)= MINOR INJURY
 BICYCLE      0                                  SLEET     0   JUNE     1    FRI     3    6 AM    0  6 PM    1
 OVRTRNC      0     TYPE OF VEHICLE COUNTS       N-SPC     1   JULY     0    SAT     3    7 AM    0  7 PM    0 (4)= INJURY NOT
 POR/NC       0                                                AUG.     0    N-S     0    8 AM    0  8 PM    1         VISIBLE
 HFD/SSI      0     PASSENGER CARS         0                   SEPT.    0                 9 AM    0  9 PM    0
 OTHER        0     TRUCKS                 0                   OCT.     0                 10AM    0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC      1     TRAILERS               0                   NOV.     0                 11AM    0  11PM    0
                    TAXI                   0                   DEC.     1                 12NN    0  12MD    1
                    HANDICAP               0                   N-SPC    0                            N-SP    0
                    MOTORCYCLE             0
                    EMERGENCY              0
                    NOT SPEC. REG.         0
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Maverick @ Cottage

Acc = 7

Maverick @ Cottage

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COMMONWEALTH OF MASSACHUSETTS            TRAFFIC ACCIDENT REPORT              PAGE    1
DEPARTMENT OF PUBLIC WORKS                   FOR PERIOD
TRAFFIC ENGINEERING SECTION              01/01/75 THRU 12/31/80               REPORT DATE 06/26/86

  BOSTON                  N  N  K                      INTERSECTION AT C1-4180 AND C2-4166
                          O  O  I
            T          H  .  .  L                                                        Cottage @ Maverick
            Y          O  V  1  L                 COLLISION MOTIONS                                         ENVIRONMENTAL CONDITIONS
 LOC CASE   P          U  E  N  E  COLL    COLL   ************************   PEDESTRIAN VEHICLE  TRAFFIC  ****************************
 NO.  NO.   E DATE     R  H  J  D  WITH    TYPE   VEH 1    VEH 2    VEH 3      ACTION    ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  ******* ******* *******  ********** ********* *******  ******* ***** **** *******

                                               PA. CAR  PA. CAR  NOTSPEC
 001 369665 P 05070 14  3  0  0 MV/TRAF  OTHR  STRAGHT  STOP SG  NO SPEC  NO SPEC    NO SPEC   STOP      DAYLGT  RAIN   WET   NO DFCT
                                   (EB) C1-4180 COTTAGE         (EB) C2-4166 AT MAVERICK ST                         VEH DIR =

                                               PA. CAR  PA. CAR
 001 013561 P 08200 09  2  0  0 MV/PRKD  REAR  LT TURN  PARKED            NO SPEC    NO SPEC   WARNING   DAYLGT  RAIN   WET   CONSTRC
                                   (EB) C1-4180 COTTAGE ST      (EB) C2-4166 AT MAVERICK ST                         VEH DIR = N W

 001 048030 P 06117 13  3  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT  PARKED   NO SPEC    NO SPEC   STOP      DAYLGT  RAIN   WET   NO SPEC
                                   (EB) C1-4180 COTTAGE ST      (EB) C2-4166 AT MAVERICK ST                         VEH DIR = S W

 001 084882 P 05238 21  2  0  0 MV/TRAF  ANGL  STRAGHT  STOP SG           NO SPEC    NO SPEC   STOP      DRK-LGT CLEAR  WET   NO SPEC
                                   (EB) C1-4180 COTTAGE ST      (EB) C2-4166 AT MAVERICK ST                         VEH DIR =

 001 190521 P 09178 24  2  0  0 MV/PRKD  OTHR  PARKED   NO SPEC           W/300 FEET NO SPEC   NO TCO    DRK-LGT N-SPC  DRY   NO DFCT
           # Acc = 5               (EB) C1-4180 COTTAGE ST      (EB) C2-4166 AT MAVERICK ST                         VEH DIR =
 FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4180 AND C2-4166 IN BOSTON          Cottage @ Maverick
   FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000 SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

   INJURY ACCIDENTS  = 000000                           PEOPLE INJURED = 000000 SEV (1)=    0 (2)=    C (3)=    0 (4)=    0 (5)=    0

   PDO * ACCIDENTS   = 000005                                                 * PDO = PROPERTY DAMAGE ONLY
                       ------                                     ------
   TOTAL ACCIDENTS   = 000005                           TOTAL INJURIES = 000000

   COLL WITH          COLL TYPE        LIGHT COND         WEATH COND        MONTH         DAY OF WK        HOUR OF DAY             SEV DEFINED

 PEDEST        0   REAR        1   DAYLGT       3   CLEAR     1   JAN.       0    SUN    1     1 AM    0  1 PM    1 (1)= KILLED
 MV/TRAF       3   ANGL        2   DAN/DSK      C   FOGGY     0   FEB.       0    MON    0     2 AM    0  2 PM    1
 MV/PRKD       2   HEAD        0   DRK-LGT      2   CLDY      0   MARCH      0    TUE    0     3 AM    0  3 PM    0 (2)= MAJOR INJURY
 RR TF         0   OTHR        2   NO-LGTS      0   RAIN      3   APRIL      0    WED    2     4 AM    0  4 PM    0
 ROR/HFO       0                   NO SPEC      0   SNOW      0   MAY        1    THR    0     5 AM    0  5 PM    0 (3)= MINOR INJURY
 BICYCLE       0    TYPE OF VEHICLE COUNTS          SLEET     0   JUNE       2    FRI    0     6 AM    0  6 PM    0
 OVRTPND       0                                    N-SPC     1   JULY       0    SAT    2     7 AM    C  7 PM    0 (4)= INJURY NOT
 ROR/NC        0     PASSENGER CARS          4                    AUG.       1    N-S    0     8 AM    0  8 PM    0        VISIBLE
 HFO/SSI       0     TRUCKS                  0                    SEPT.      1                 9 AM    1  9 PM    1
 OTHER         0     TRAILERS                0                    OCT.       0                 10AM    0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC       0     TAXI                    0                    NOV.       C                 11AM    0  11PM    0
                     HANDICAP                0                    DEC.       0                 12NN    0  12MD    1
                     MOTORCYCLE              0                    N-SPC      0                            N-SP    0
                     EMERGENCY               0
                     NOT SPEC. REG.          1
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                                     COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                    PAGE    1
                                     DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                                     TRAFFIC ENGINEERING SECTION            01/01/75 THRU 12/31/80                     REPORT DATE 06/26/86

  BOSTON                  N  N  K                    INTERSECTION AT C1-4166 AND C2-4205
                          O  O  I                                      Maverick @ Jeffries
              T        H  .  .  L
              Y        O  V  I  L                 COLLISION MOTIONS                                            ENVIRONMENTAL CONDITIONS
 LOC CASE     P        U  E  N  E  COLL    COLL  *************************  PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.     E DATE   R  H  J  D  WITH    TYPE   VEH 1   VEH 2    VEH 3      ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ******   * ***** ** ** ** ** *******  ****  *******  *******  *******  ********** ********** *******  ******* *****  ****  *******

 001 202398 P 09018 24  2  0  0 MV/PRKD  OTHR  LT TURN  PARKED              NO SPEC    NO SPEC   NO TCD   NO SPEC N-SPC  OTHR  NO SPEC
                                 (EB) C1-4166 MAVERICK ST        (EB) C2-4205 AT JEFFRIES ST                    VEH DIR =

 NUMBER OF ACCIDENTS      1


 FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-4166 AND C2-4205 IN BOSTON

  FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS  = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS   = 000001                                             * PDO = PROPERTY DAMAGE ONLY
                      ------                                 ------
  TOTAL ACCIDENTS   = 000001                   TOTAL INJURIES = 000000

  COLL WITH        COLL TYPE     LIGHT COND      WEATH COND       MONTH        DAY OF WK        HOUR OF DAY             SEV DEFINED

 PEDEST     0    REAR      0   DAYLGT    0    CLEAR     0    JAN.       0    SUN    0    1 AM    0   1 PM    0  (1)= KILLED
 MV/TRAF    0    ANGL      0   OWN/DSK   0    FOGGY     0    FEB.       0    MON    0    2 AM    0   2 PM    0
 MV/PRKD    1    HEAD      0   DRK-LGT   0    CLDY      0    MARCH      0    TUE    0    3 AM    0   3 PM    0  (2)= MAJOR INJURY
 RR TR      0    OTHR      1   NO-LGTS   0    RAIN      0    APRIL      0    WED    0    4 AM    0   4 PM    0
 ROR/HFO    0                  NO SPEC   1    SNOW      0    MAY        0    THR    0    5 AM    0   5 PM    0  (3)= MINOR INJURY
 BICYCLE    0                                 SLEET     0    JUNE       0    FRI    1    6 AM    0   6 PM    0
 OVRTRND    0                                 N-SPC     1    JULY       0    SAT    0    7 AM    0   7 PM    0  (4)= INJURY NOT
 ROR/NC     0                                                AUG.       0    N-S    0    8 AM    0   8 PM    0        VISIBLE
 HFO/SSI    0                                                SEPT.      1                 9 AM    C   9 PM    0
 OTHER      0                                                OCT.       0                 10AM    0   10PM    0  (5)= NOT SPECIFIED
 NO SPEC    0                                                NOV.       0                 11AM    0   11PM    0
                                                             DEC.       0                 12NN    0   12MD    1
                                                             N-SPC      0                             N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS     0
  TRUCKS             0
  TRAILERS           0
  TAXI               0
  HANDICAP           0
  MOTORCYCLE         0
  EMERGENCY          0
  NOT SPEC. REG.     0
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                          COMMONWEALTH OF MASSACHUSETTS           TRAFFIC ACCIDENT REPORT                  PAGE    1
                          DEPARTMENT OF PUBLIC WORKS                      FOR PERIOD
                          TRAFFIC ENGINEERING SECTION             01/01/75 THRU 12/31/80                   REPORT DATE 06/26/86

  BOSTON                N  N  K                      INTERSECTION AT C1-4205 AND C2-4166
                        O  O  I
            T        H  .  .  L                                                          Jeffries @ Maverick
            Y        O  V  I  L                          COLLISION MOTIONS                                           ENVIRONMENTAL CONDITIONS
  LOC CASE  P        U  E  N  E  COLL     COLL  ************************ PEDESTRIAN  VEHICLE  TRAFFIC  ******************************
  NO.  NO.  E DATE   R  H  J  O  WITH     TYPE   VEH 1     VEH 2    VEH 3    ACTION    ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
  *** ****** * ***** ** ** ** ** *******  ****  *******   *******  *******  ********** ********* *******  *******  *****  ****  *******

  001 034235 P 05179 11  2  0  0 MV/TRAF  REAR  SLOWING   LT TURN            NO SPEC   NO SPEC   NO ICO   DAYLGT   CLEAR  DRY   NO DFCT
                       (EB) C1-4205 JEFFRIES ST       (EB) C2-4166 AT MAVERICK ST                          VEH DIR = N N

  NUMBER OF ACCIDENTS     1


  FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4205 AND C2-4166 IN BOSTON

  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   INJURY ACCIDENTS = 000000                         PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   PDO * ACCIDENTS  = 000001                                                   * PDO = PROPERTY DAMAGE ONLY
                      ------                                        ------
   TOTAL ACCIDENTS  = 000001                         TOTAL INJURIES = 000000

    COLL WITH        COLL TYPE     LIGHT COND      WEATH COND       MONTH       DAY OF WK        HOUR OF DAY            SEV DEFINED

  PEDEST      0   REAR      1   DAYLGT      1   CLEAR     1   JAN.      0   SUN     0    1 AM   0  1 PM   0 (1)= KILLED
  MV/TRAF     1   ANGL      0   DWN/DSK     0   FOGGY     0   FEB.      0   MON     0    2 AM   0  2 PM   0
  MV/PRKO     0   HEAD      0   DRK-LGT     0   CLDY      0   MARCH     0   TUE     0    3 AM   0  3 PM   0 (2)= MAJOR INJURY
  RR TR       0   OTHR      0   NO-LGTS     0   RAIN      0   APRIL     0   WED     0    4 AM   0  4 PM   0
  ROR/HFO     0                 NO SPEC     0   SNOW      0   MAY       1   THR     1    5 AM   0  5 PM   0 (3)= MINOR INJURY
  BICYCLE     0                                 SLEET     0   JUNE      0   FRI     0    6 AM   0  6 PM   0
  OVRTKND     0                                 N-SPC     0   JULY      0   SAT     0    7 AM   0  7 PM   0 (4)= INJURY NOT
  ROR/NC      0                                               AUG.      0   N-S     0    8 AM   0  8 PM   0         VISIBLE
  FED/SSI     0                                               SEPT.     0                9 AM   0  9 PM   0
  OTHER       0                                               OCT.      0               10AM    0 10PM    0 (5)= NOT SPECIFIED
  NO SPEC     0                                               NOV.      0               11AM    1 11PM    0
                                                              DEC.      0               12NN    0 12MD    0
                                                              N-SPC     0                         N-SP    0

  TYPE OF VEHICLE COUNTS

   PASSENGER CARS        0
   TRUCKS                0
   TRAILERS              0
   TAXI                  0
   HANDICAP              0
   MOTORCYCLE            0
   EMERGENCY             0
   NOT SPEC. REG.        0
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-2650 AND C2-4165 IN BOSTON    SUMNER @ NEW

 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000000                          PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 PDO * ACCIDENTS  = 000003                              * PDO = PROPERTY DAMAGE ONLY
                    ------                                       ------
 TOTAL ACCIDENTS  = 000003                          TOTAL INJURIES = 000000

  COLL WITH        COLL TYPE      LIGHT COND      WEATH COND       MONTH         DAY OF WK         HOUR OF DAY               SEV DEFINED

 PEDEST      0   REAR      1   DAYLGT     1   CLEAR     2   JAN.      0   SUN     1    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF     2   ANGL      2   DAWN/DSK   1   FOGGY     0   FEB.      0   MON     0    2 AM    0   2 PM    0
 MV/PRKD     1   HEAD      0   DRK-LGT    1   CLDY      1   MARCH     0   TUE     0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
 RR TR       0   OTHR      0   NO-LGTS    0   RAIN      0   APRIL     0   WED     1    4 AM    0   4 PM    0
 RDR/HED     0                 NO SPEC    0   SNOW      0   MAY       0   THR     1    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                SLEET     0   JUNE      0   FRI     0    6 AM    0   6 PM    0
 OVRTRND     0                                N-SPC     0   JULY      2   SAT     0    7 AM    1   7 PM    0 (4)= INJURY NOT
 RDF/NC      0                                              AUG.      0   N-S     0    8 AM    1   8 PM    0        VISIBLE
 HED/SSI     0                                              SEPT.     0                9 AM    0   9 PM    0
 OTHER       0                                              OCT.      0               10AM     0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                              NOV.      0               11AM     0  11PM    0
                                                            DEC.      1               12NN     0  12MD    1
                                                            N-SPC     0                           N-SP    0


FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4165 AND C2-2650 IN BOSTON    NEW @ SUMNER

 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000000                          PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 PDO * ACCIDENTS  = 000000                              * PDO = PROPERTY DAMAGE ONLY
                    ------                                       ------
 TOTAL ACCIDENTS  = 000000                          TOTAL INJURIES = 000000

  COLL WITH        COLL TYPE      LIGHT COND      WEATH COND       MONTH         DAY OF WK         HOUR OF DAY               SEV DEFINED

 PEDEST      0   REAR      0   DAYLGT     0   CLEAR     0   JAN.      0   SUN     0    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF     0   ANGL      0   DAWN/DSK   0   FOGGY     0   FEB.      0   MON     0    2 AM    0   2 PM    0
 MV/PRKD     0   HEAD      0   DRK-LGT    0   CLDY      0   MARCH     0   TUE     0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
 RR TR       0   OTHR      0   NO-LGTS    0   RAIN      0   APRIL     0   WED     0    4 AM    0   4 PM    0
 RDR/FXD     0                 NO SPEC    0   SNOW      0   MAY       0   THR     0    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                SLEET     0   JUNE      0   FRI     0    6 AM    0   6 PM    0
 OVRTRND     0                                N-SPC     0   JULY      0   SAT     0    7 AM    0   7 PM    0 (4)= INJURY NOT
 RDF/NC      0                                              AUG.      0   N-S     0    8 AM    0   8 PM    0        VISIBLE
 HED/SSI     0                                              SEPT.     0                9 AM    0   9 PM    0
 OTHER       0                                              OCT.      0               10AM     0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                              NOV.      0               11AM     0  11PM    0
                                                            DEC.      0               12NN     0  12MD    0
                                                            N-SPC     0                           N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS     0
  TRUCKS             0
  TRAILERS           0
  TAXI               0
  HANDICAP           0
  MOTORCYCLE         0
  EMERGENCY          0
  NOT SPEC. VEH.     0
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                    COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                PAGE    1
                    DEPARTMENT OF PUBLIC WORKS                   FOR PERIOD
                    TRAFFIC ENGINEERING SECTION            01/01/75  THRU 12/31/80                REPORT DATE 06/26/86

  BOSTON                    N  N  K              INTERSECTION AT C1-2650 AND C2-4165
                            O  U  I
               T         H  .  .  L
               Y         O  V  I  L                     COLLISION MOTIONS                                                     ENVIRONMENTAL CONDITIONS
LOC CASE       P         U  E  N  E  COLL     COLL   ************************  PEDESTRIAN  VEHICLE  TRAFFIC  ****************************
NO. NO.        E DATE    R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION      ACTION  CONTROL  LIGHT    WEATH  SURF  ROADWAY
*** ******     * *****  ** ** ** ** *******   ****   *******  *******  *******  ***********  ******** *******  *******  *****  ****  *******

001 992630 P 07610 05  2  0  0 MV/TRAF  ANGL  RT TURN  RT TURN           NO SPEC    NO SPEC  NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                                ( U) C1-2850 SUMNER           (EB) C2-4165 AT NEW                              VEH DIR = S S

                                              PA. CAR  PA. CAR
001 415371 P 07160 24  2  0  0 MV/TRAF  ANGL  LT TURN  RT TURN           NO SPEC    NO SPEC  NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
                                ( U) C1-2850 SUMNER           (EB) C2-4165 AT NEW ST                           VEH DIR = S N

001 105771 P 12139 07  2  0  0 MV/PRKD  REAR  PARKED   BACKING           NO SPEC    NO SPEC  NO TCD   DWN/DSK  CLDY   DRY   NO DFCT
                                ( U) C1-2650 SUMNER ST        (EB) C2-4165 AT NEW ST                           VEH DIR =

NUMBER OF ACCIDENTS      3
```

SUMNER AT NEW

E-30

SUMNER @ CLIPPERSHIP

```
FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-2650 AND C2-4034 IN BOSTON

FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS = 000000                            PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

PDO * ACCIDENTS  = 000000                                                        * PDO = PROPERTY DAMAGE ONLY
                   ------                                           ------
TOTAL ACCIDENTS  = 000000                            TOTAL INJURIES = 000000

 COLL WITH        COLL TYPE      LIGHT COND       WEATH COND       MONTH          DAY OF WK        HOUR OF DAY               SEV DEFINED

PEDEST      0    REAR       0    DAYLGT      0    CLEAR      0    JAN.      0    SUN    0    1 AM    0   1 PM    0 (1)= KILLED
MV/TRAF     0    ANGL       0    DWN/DSK     0    FOGGY      0    FEB.      0    MON    0    2 AM    0   2 PM    0
MV/PRKD     0    HEAD       0    DRK-LGT     0    CLDY       0    MARCH     0    TUE    0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
RR TR       0    OTHR       0    NO-LGTS     0    RAIN       0    APRIL     0    WED    0    4 AM    0   4 PM    0
ROR/HFL     0                    NO SPEC     0    SNOW       0    MAY       0    THR    0    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE     0                                     SLEET      0    JUNE      0    FRI    0    6 AM    0   6 PM    0
OVRTRND     0                                     N-SPC      0    JULY      0    SAT    0    7 AM    0   7 PM    0 (4)= INJURY NOT
ROR/FO      0                                                     AUG.      0    N-S    0    8 AM    0   8 PM    0        VISIBLE
RFO/SSI     0                                                     SEPT.     0                 9 AM    0   9 PM    0
OTHER       0                                                     OCT.      0                10AM     0  10PM    0 (5)= NOT SPECIFIED
NO SPEC     0                                                     NOV.      0                11AM     0  11PM    0
                                                                  DEC.      0                12NN     0  12MD    0
                                                                  N-SPC     0                           N-SP    0
```

CLIPPERSHIP @ SUMNER

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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4034 AND C2-2650 IN BOSTON

FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS = 000000                            PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

PDO * ACCIDENTS  = 000000                                                        * PDO = PROPERTY DAMAGE ONLY
                   ------                                           ------
TOTAL ACCIDENTS  = 000000                            TOTAL INJURIES = 000000

 COLL WITH        COLL TYPE      LIGHT COND       WEATH COND       MONTH          DAY OF WK        HOUR OF DAY               SEV DEFINED

PEDEST      0    REAR       0    DAYLGT      0    CLEAR      0    JAN.      0    SUN    0    1 AM    0   1 PM    0 (1)= KILLED
MV/TRAF     0    ANGL       0    DWN/DSK     0    FOGGY      0    FEB.      0    MON    0    2 AM    0   2 PM    0
MV/PRKD     0    HEAD       0    DRK-LGT     0    CLDY       0    MARCH     0    TUE    0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
RR TR       0    OTHR       0    NO-LGTS     0    RAIN       0    APRIL     0    WED    0    4 AM    0   4 PM    0
ROR/HFL     0                    NO SPEC     0    SNOW       0    MAY       0    THR    0    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE     0                                     SLEET      0    JUNE      0    FRI    0    6 AM    0   6 PM    0
OVRTRND     0                                     N-SPC      0    JULY      0    SAT    0    7 AM    0   7 PM    0 (4)= INJURY NOT
ROR/FO      0                                                     AUG.      0    N-S    0    8 AM    0   8 PM    0        VISIBLE
RFO/SSI     0                                                     SEPT.     0                 9 AM    0   9 PM    0
OTHER       0                                                     OCT.      0                10AM     0  10PM    0 (5)= NOT SPECIFIED
NO SPEC     0                                                     NOV.      0                11AM     0  11PM    0
                                                                  DEC.      0                12NN     0  12MD    0
                                                                  N-SPC     0                           N-SP    0

TYPE OF VEHICLE COUNTS

  PASSENGER CARS           0
  TRUCKS                   0
  TRAILERS                 0
  [illegible]
  TAXICAB                  0
  MOTR-CYCLE               0
  EMERGENCY                0
  NOT SPEC. VEH.           0
```

```
FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-2850 AND C2-4166 IN BOSTON    SUMNER @ HAVRE
  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  0 (5)=  0

  INJURY ACCIDENTS = 000000                          PEOPLE INJURED = 000000  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  0 (5)=  0

  PDO * ACCIDENTS  = 000000                                           * PDO = PROPERTY DAMAGE ONLY
                     ------                                    ------
  TOTAL ACCIDENTS  = 000000                          TOTAL INJURIES = 000000

   COLL WITH       COLL TYPE     LIGHT COND      WEATH COND       MONTH       DAY OF WK        HOUR OF DAY           SEV DEFINED

  PEDEST      0   REAR     0   DAYLGT     0   CLEAR     0   JAN.     0   SUN    0   1 AM   0  1 PM   0 (1)= KILLED
  MV/TRAF     0   ANGL     0   DWN/DSK    0   FOGGY     0   FEB.     0   MON    0   2 AM   0  2 PM   0
  MV/PRKD     0   HEAD     0   DRK-LGT    0   CLDY      0   MARCH    0   TUE    0   3 AM   0  3 PM   0 (2)= MAJOR INJURY
  RR TR       0   OTHR     0   NO-LGTS    0   RAIN      0   APRIL    0   WED    0   4 AM   0  4 PM   0
  FOR/FED     0                NO SPEC    0   SNOW      0   MAY      0   THR    0   5 AM   0  5 PM   0 (3)= MINOR INJURY
  BICYCLE     0                               SLEET     0   JUNE     0   FRI    0   6 AM   0  6 PM   0
  OVRTRNL     0                               N-SPC     0   JULY     0   SAT    0   7 AM   0  7 PM   0 (4)= INJURY NOT
  POR/NC      0                                             AUG.     0   N-S    0   8 AM   0  8 PM   0        VISIBLE
  HFD/SST     0                                             SEPT.    0              9 AM   0  9 PM   0
  OTHER       0                                             OCT.     0              10AM   0  10PM   0 (5)= NOT SPECIFIED
  NO SPEC     0                                             NOV.     0              11AM   0  11PM   0
                                                            DEC.     0              12NN   0  12MD   0
                                                            N-SPC    0                        N-SP   0

  TYPE OF VEHICLE COUNTS
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FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-4166 AND C2-2850 IN BOSTON    HAVRE @ SUMNER
  FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  0 (5)=  0

  INJURY ACCIDENTS = 000000                          PEOPLE INJURED = 000000  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  0 (5)=  0

  PDO * ACCIDENTS  = 000000                                           * PDO = PROPERTY DAMAGE ONLY
                     ------                                    ------
  TOTAL ACCIDENTS  = 000000                          TOTAL INJURIES = 000000

   COLL WITH       COLL TYPE     LIGHT COND      WEATH COND       MONTH       DAY OF WK        HOUR OF DAY           SEV DEFINED

  PEDEST      0   REAR     0   DAYLGT     0   CLEAR     0   JAN.     0   SUN    0   1 AM   0  1 PM   0 (1)= KILLED
  MV/TRAF     0   ANGL     0   DWN/DSK    0   FOGGY     0   FEB.     0   MON    0   2 AM   0  2 PM   0
  MV/PRKD     0   HEAD     0   DRK-LGT    0   CLDY      0   MARCH    0   TUE    0   3 AM   0  3 PM   0 (2)= MAJOR INJURY
  RR TR       0   OTHR     0   NO-LGTS    0   RAIN      0   APRIL    0   WED    0   4 AM   0  4 PM   0
  FOR/FED     0                NO SPEC    0   SNOW      0   MAY      0   THR    0   5 AM   0  5 PM   0 (3)= MINOR INJURY
  BICYCLE     0                               SLEET     0   JUNE     0   FRI    0   6 AM   0  6 PM   0
  OVRTRNL     0                               N-SPC     0   JULY     0   SAT    0   7 AM   0  7 PM   0 (4)= INJURY NOT
  POR/NC      0                                             AUG.     0   N-S    0   8 AM   0  8 PM   0        VISIBLE
  HFD/SST     0                                             SEPT.    0              9 AM   0  9 PM   0
  OTHER       0                                             OCT.     0              10AM   0  10PM   0 (5)= NOT SPECIFIED
  NO SPEC     0                                             NOV.     0              11AM   0  11PM   0
                                                            DEC.     0              12NN   0  12MD   0
                                                            N-SPC    0                        N-SP   0

  TYPE OF VEHICLE COUNTS

   PASSENGER CARS
   TRUCKS                     0
   TRAILERS
   TAXI                       0
   [illegible]                0
   MOTORCYCLE
   [illegible]
   [illegible]
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                              COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                    PAGE    1
                              DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                              TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                REPORT DATE 06/26/86

  BOSTON                  N  N  K                     INTERSECTION AT C1-2850 AND C2-4173   SUMNER @ PARIS
                          O  O  I
        T              F  .  .  L
        Y              O  V  I  L                     COLLISION MOTIONS                                             ENVIRONMENTAL CONDITIONS
 LOC CASE   P          U  E  N  E  COLL     COLL   *************************  PEDESTRIAN  VEHICLE   TRAFFIC  *****************************
 NO.  NO.   E DATE     R  H  J  D  WITH     TYPE    VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT    WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** *******  ****   *******  *******  *******  ********** ********* *******  *******  *****  ****  *******

 001 [illegible] P [illegible]  [illegible]  0 MV/TRAF  ANGL  STRAGHT  LT TURN          NO SPEC   NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                              ( D) C1-2850 SUMNER ST         (EB) C2-4173 AT PARIS                                    VEH DIR = N E

 002 [illegible] P [illegible]  [illegible]  0 MV/TRAF  ANGL  SLOWING  BACKING          NO SPEC   NO SPEC   NO TCD   DAYLGT   CLEAR  ICY   DEBRIS
                              ( D) C1-2850 SUMNER ST         (EB) C2-4173 AT PARIS ST                                 VEH DIR = E E

 NUMBER OF ACCIDENTS      2


 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-2850 AND C2-4173 IN BOSTON     SUMNER @ PARIS

 FATAL ACCIDENTS   = 000000   PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  INJURY ACCIDENTS = 000000                            PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

  PDO * ACCIDENTS  = 000002                                    * PDO = PROPERTY DAMAGE ONLY
                     ------                                  ------
 TOTAL ACCIDENTS   = 000002                  TOTAL INJURIES = 000000

  COLL WITH         COLL TYPE      LIGHT COND        WEATH COND       MONTH          DAY OF WK       HOUR OF DAY              SEV DEFINED

 PEDEST      0    REAR     0    DAYLGT     2    CLEAR    2    JAN.    0    SUN    1    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF     2    ANGL     2    DWN/DSK    0    FOGGY    0    FEB.    0    MON    0    2 AM    0   2 PM    0
 MV/PRKD     0    HEAD     0    DRK-LGT    0    CLDY     0    MARCH   0    TUE    0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
 RR TR       0    OTHR     0    NO-LGTS    0    RAIN     0    APRIL   0    WED    1    4 AM    0   4 PM    0
 FOR/HED     0                  NO SPEC    0    SNOW     0    MAY     0    THR    0    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                  SLEET    0    JUNE    1    FRI    0    6 AM    0   6 PM    0
 OVRTRND     0                                  N-SPC    0    JULY    0    SAT    0    7 AM    0   7 PM    1 (4)= INJURY NOT
 ROR/NC      0                                                AUG.    0    N-S    0    8 AM    0   8 PM    0         VISIBLE
 HFO/SSI     0                                                SEPT.   0                 9 AM    0   9 PM    0
 OTHER       0                                                OCT.    0                 10AM    0   10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                                NOV.    0                 11AM    1   11PM    0
                                                              DEC.    1                 12NN    0   12MD    0
                                                              N-SPC   0                             N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS        [illegible]
  TRUCKS                0
  TRAILERS
  TAXI                  0
  MEDICAL               0
  MOTORCYCLE            [illegible]
  EMERGENCY             0
  NOT SPEC. VEH.        0
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                                      DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                                      TRAFFIC ENGINEERING SECTION          01/01/79 THRU 12/31/80                  REPORT DATE 06/26/86

  BOSTON                  N  N  K                  INTERSECTION AT C1-4173 AND C2-2650    PARIS @ SUMNER
                          U  O  I
             T         F  .  .  L
             Y         U  V  I  L                   COLLISION MOTIONS                                                ENVIRONMENTAL CONDITIONS
 LOC CASE    P         U  E  N  F  COLL    COLL  ***************************  PEDESTRIAN  VEHICLE   TRAFFIC   ****************************
 NO.  NO.    E DATE    N  H  J  D  WITH    TYPE   VEH 1    VEH 2    VEH 3      ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** *******  ****  *******  *******  *******  **********  *********  *******  *******  *****  ****  *******

                                                  PA. CAR  PA. CAR
 002 076006 I 12030 16  2  1  0 MV/TRAF  ANGL   LT TURN  STRAGHT            NO SPEC    NO SPEC    NO TCD    DRK-LGT  CLEAR  DRY   NO DFCT
                                 (EB) C1-4173 PARIS                ( D) C2-2650 AT SUMNER                        VEH DIR . S W

                                                  PA. CAR  TRAILER
 001 411806 P 07215 09  -  0  0 MV/PRKD  ANGL   PARKED   LT TURN            NO SPEC    NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4173 PARIS ST              ( D) C2-2650 0020 FEET N OF SUMNER ST         VEH DIR =   S

 001 365950 P 09105 24  2  0  0 MV/TRAF  REAR   SLOWING  STRAGHT            NO SPEC    NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                 (EB) C1-4173 PARIS ST              ( D) C2-2650 AT SUMNER ST                     VEH DIR =

 NUMBER OF ACCIDENTS     3


 FOR PERIOD 01/01/79 THRU 12/31/80    INTERSECTION AT C1-4173 AND C2-2650 IN BOSTON       PARIS @ SUMNER

 FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=  0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000001                            PEOPLE INJURED = 000001  SEV (1)=   0 (2)=   1 (3)=   0 (4)=   0 (5)=   0

 PDO * ACCIDENTS  = 000002                                          * PDO = PROPERTY DAMAGE ONLY
                    ------                                 ------
 TOTAL ACCIDENTS  = 000003                       TOTAL INJURIES = 000001

  COLL WITH         COLL TYPE      LIGHT COND        WEATH COND         MONTH       DAY OF WK          HOUR OF DAY            SEV DEFINED

 PEDEST       0   REAR      1    DAYLGT      2    CLEAR      3     JAN.      0   SUN    0     1 AM     0   1 PM    0  (1)= KILLED
 MV/TRAF      2   ANGL      2    DAWN/DSK    0    FOGGY      0     FEB.      0   MON    1     2 AM     0   2 PM    0
 MV/PRKD      1   HEAD      0    DRK-LGT     1    SLEY       0     MARCH     0   TUE    0     3 AM     0   3 PM    0  (2)= MAJOR INJURY
 RR TR        0   OTHR      0    NO-LGTS     0    RAIN       0     APRIL     0   WED    2     4 AM     0   4 PM    1
 FOR/FED      0                  NO SPEC     0    SNOW       0     MAY       0   THR    0     5 AM     0   5 PM    0  (3)= MINOR INJURY
 BICYCLE      0                                   SLEET      0     JUNE      0   FRI    0     6 AM     0   6 PM    0
 OVRTRN       0                                   N-SPC      0     JULY      1   SAT    0     7 AM     0   7 PM    0  (4)= INJURY NOT
 FOR/NC       0                                                    AUG.      0   N-S    0     8 AM     0   8 PM    0         VISIBLE
 MFL/SSI      0                                                    SEPT.     1                 9 AM     1   9 PM    0
 OTHER        0                                                    OCT.      0                10AM      0   10PM    0  (5)= NOT SPECIFIED
 NO SPEC      0                                                    NOV.      0                11AM      0   11PM    0
                                                                   DEC.      1                12NN      0   12MD    1
                                                                   N-SPC     0                              N-SP    0

 TYPE OF VEHICLE COUNTS

   PASSENGER CARS       3
   TRUCKS               0
   TRAILER              1
   TAXI                 0
   HANDICAP             0
   MOTORCYCLE           0
   EMERGENCY            0
   NOT SPEC. VEH.       0
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Sumner @ Mav Sq

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                                        DEPARTMENT OF PUBLIC WORKS               FOR PERIOD
                                        TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                      REPORT DATE 06/26/86

  BOSTON                    N  N  K                  INTERSECTION AT C1-2850 AND C2-4177
                            U  O  I
                 T       H  .  .  L
                 Y       O  V  I  L                   COLLISION MOTIONS                                                       ENVIRONMENTAL CONDITIONS
 LOC CASE        P       U  E  N  E  COLL     COLL   ************************  PEDESTRIAN  VEHICLE   TRAFFIC   **********************************
 NO.  NO.        E DATE  R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION      ACTION    CONTROL   LIGHT    WEATH  SURF  ROADWAY
 *** ******  * ***** ** ** ** ** *******  ****   *******  *******  *******  **********  *********  *******   *******  *****  ****  *******

 001 384430 F 03135 15  2  0  0 MV/TRAF  ANGL   STRAGHT  LT TURN           NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 AT BREMEN                              VEH DIR = S E

 C03 902740 P 12175 11  2  0  0 MV/PRKD  ANGL   PARKED   STRAGHT           NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER               (EB) C2-4177 AT BREMEN                              VEH DIR =

 001 132971 P 08077 09  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT           NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 AT BREMEN                              VEH DIR = W S

                                                TRAILER  PA. CAR
 C01 370553 P 06320 24  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT           NO SPEC     NO SPEC    STOP      DRK-LGT  CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER               (EB) C2-4177 AT BREMEN ST                           VEH DIR = N W

 C01 716640 P 11015 24  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT           NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 AT BREMEN ST                           VEH DIR = S E

 001 236449 I 09197 00  2  1  0 NO SPEC  ANGL   LT TURN  STRAGHT           NO SPEC     HIT ABUT   STOP      DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 AT BREMEN ST                           VEH DIR = S E

 001 356620 P 05079 12  2  0  0 MV/PRKD  ANGL   PASS/LT  OTHER             NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 0500 FEET W OF BREMEN ST               VEH DIR = E E

 001 276542 I 05099 13  2  1  0 MV/TRAF  ANGL   STRAGHT  U TURN            NO SPEC     NO SPEC    NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                                ( D) C1-2850 SUMNER ST            (EB) C2-4177 AT BREMEN ST                           VEH DIR =
 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

  INJURY ACCIDENTS = 000002                          PEOPLE INJURED = 000002  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   2 (5)=   0

  PDO * ACCIDENTS  = 000006                                                * PDO = PROPERTY DAMAGE ONLY
                     ------                                       ------
  TOTAL ACCIDENTS  = 000008                          TOTAL INJURIES = 000002

   COLL WITH         COLL TYPE      LIGHT COND          WEATH COND         MONTH        DAY OF WK          HOUR OF DAY              SEV DEFINED

  PEDEST       0   REAR      0   DAYLGT       7     CLEAR                JAN.     0    SUN     1     1 AM    0   1 PM    1 (1)= KILLED
  MV/TRAF      5   ANGL      8   DAWN/DSK     0     FOGGY        0       FEB.     0    MON     3     2 AM    0   2 PM    0
  MV/PRKD      2   HEAD      0   DRK-LGT      1     CLDY         0       MARCH    1    TUE     0     3 AM    0   3 PM    1 (2)= MAJOR INJURY
  FX OB        0   OTHR      0   NO-LGTS      0     RAIN         0       APRIL    0    WED     2     4 AM    0   4 PM    0
  FOR/FFC      0                 NO SPEC      0     SNOW         0       MAY      2    THR     1     5 AM    0   5 PM    0 (3)= MINOR INJURY
  BICYCLE      0     TYPE OF VEHICLE                SLEET        0       JUNE     1    FRI     0     6 AM    0   6 PM    0
  EVETRNG      0                                    N-SPC        0       JULY     0    SAT     1     7 AM    0   7 PM    0 (4)= INJURY NOT
  FOR/NC       0      PASSENGER CARS        1                            AUG.     1    N-S     0     8 AM    0   8 PM    0         VISIBLE
  FED/SOI      0      TRUCKS                0                            SEPT.    1                  9 AM    1   9 PM    0
  OTHER        0      TRAILERS              1                            OCT.     0                  10AM    0   10PM    0 (5)= NOT SPECIFIED
  NO SPEC      1      TAXI                  0                            NOV.     1                  11AM    1   11PM    0
                      HANDICAP              0                            DEC.     1                  12NN    3   12MN    2
                      MOTRCYCL                                                                                   N-SP    1
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Acc = 8

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                                     COMMONWEALTH OF MASSACHUSETTS     TRAFFIC ACCIDENT REPORT           PAGE    1
                                     DEPARTMENT OF PUBLIC WORKS             FOR PERIOD
                                     TRAFFIC ENGINEERING SECTION       01/01/79 THRU 12/31/80          REPORT DATE 06/26/86

  BOSTON                     N  N  K                 INTERSECTION AT C1-2850 AND C2-4176     SUMNER @ MAV. SQ
                             O  O  I
              T          H   .  .  L
              Y          O   V  I  L                    COLLISION-MOTIONS                                                 ENVIRONMENTAL-CONDITIONS
LOC CASE      P          U   E  N  E  COLL     COLL  ************************** PEDESTRIAN VEHICLE   TRAFFIC  *****************************
NO.  NO.      E DATE     R   H  J  D  WITH     TYPE    VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL  LIGHT    WEATH  SURF  ROADWAY
*** ******    * *****   **  ** ** ** *******   ****  *******  *******  *******  ********** ********* *******  *******  *****  ****  *******

001 13685K P 08026 15   2  0  0 MV/TRAF  ANGL  STRAGHT  LT TURN            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                               ( D) C1-2850 SUMNER ST        (EB) C2-4176 AT MAVERICK SQ                          VEH DIR = W W

001 14677K P 08216 19   2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT            NO SPEC    NO SPEC   SIGNAL   DRK-LGT  CLEAR  DRY   NO DFCT
                               ( D) C1-2850 SUMNER ST        (EB) C2-4176 AT MAVERICK SQ                          VEH DIR =

001 062463 P 11079 11   2  0  0 MV/TRAF  REAR  BACKING  SLOWING            NO SPEC    NO SPEC   SIGNAL   DAYLGT   CLEAR  DRY   NO DFCT
                               ( D) C1-2850 SUMNER ST        (EB) C2-4176 AT MAVERICK SQ                          VEH DIR = E E

NUMBER OF ACCIDENTS       3


FOR PERIOD 01/01/79 THRU 12/31/80     INTERSECTION AT C1-2850 AND C2-4176 IN BOSTON          MAV SQ @ SUMNER
FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0
INJURY ACCIDENTS   = 000000                           PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0
PDO * ACCIDENTS    = 000003                                                    * PDO = PROPERTY DAMAGE ONLY
                     ------                                    ------
TOTAL ACCIDENTS    = 000003                          TOTAL INJURIES = 000000

 COLL WITH         COLL TYPE      LIGHT COND       WEATH COND        MONTH         DAY OF WK          HOUR OF DAY             SEV DEFINED

PEDEST        0    REAR     1     DAYLGT     2     CLEAR      3      JAN.     0    SUN     0      1 AM    0   1 PM    0  (1)= KILLED
MV/TRAF       3    ANGL     2     DWN/DSK    0     FOGGY      0      FEB.     0    MON     1      2 AM    0   2 PM    0
MV/PRKD       0    HEAD     0     DRK-LGT    1     CLOY       0      MARCH    0    TUE     0      3 AM    0   3 PM    1  (2)= MAJOR INJURY
RR TR         0    OTHR     0     NO-LGTS    0     RAIN       0      APRIL    0    WED     1      4 AM    0   4 PM    0
POR/HFO       0                   NO SPEC    0     SNOW       0      MAY      0    THR     0      5 AM    0   5 PM    0  (3)= MINOR INJURY
BICYCLE       0                                    SLEET      0      JUNE     0    FRI     0      6 AM    0   6 PM    0
OVRTRND       0                                    N-SPC      0      JULY     0    SAT     1      7 AM    0   7 PM    1  (4)= INJURY NOT
FOR/NC        0                                                      AUG.     2    N-S     0      8 AM    0   8 PM    0           VISIBLE
HFO/SSI       0                                                      SEPT.    0                   9 AM    0   9 PM    0
OTHER         0                                                      OCT.     0                  10AM     0  10PM    0  (5)= NOT SPECIFIED
NO SPEC       0                                                      NOV.     1                  11AM     1  11PM    0
                                                                     DEC.     0                  12NN     0  12MD    0
                                                                     N-SPC    0                             N-SP    0

TYPE OF VEHICLE COUNTS

 PASSENGER CARS          0
 TRUCKS                  0
 TRAILERS                0
 TAXI                    0
 HANDICAP                0
 MOTORCYCLE              0
 EMERGENCY               0
 NOT SPEC. ....          0
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                      COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                    PAGE    1
                      DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                      TRAFFIC ENGINEERING SECTION            01/01/75 THRU 12/31/80               REPORT DATE 06/26/86

 BOSTON                   N  N  K                       INTERSECTION AT C1-4176 AND C2-2850   MAV SQ @ SUMNER
                          U  U  I
               T       H  .  .  L
               Y       O  V  I  L                 COLLISION MOTIONS                                   ENVIRONMENTAL CONDITIONS
 LOC CASE      P       U  E  N  E  COLL    COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.      E DATE  R  H  J  D  WITH    TYPE   VEH 1   VEH 2   VEH 3    ACTION     ACTION   CONTROL   LIGHT  WEATH  SURF  ROADWAY
 *** ******    * ***** ** ** ** ** ******* ****  ******* ******* *******  ********** ********* *******  ******* ***** ****  *******

                                                  PA. CAR  PA. CAR
 001 022601    P 08270 16  2  0  0 MV/TRAF REAR  STRAGHT LT TURN           NO SPEC    NO SPEC   NO TCO   DAYLGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4176 MAVERICK SQ      ( D) C2-2850 AT SUMNER ST                        VEH DIR =

 001 386780    I 03215 09  1  1  0 PEDEST  OTHR  SLOWING                   SIGN IN ST NO SPEC   STOP     DAYLGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4176 S MAVERICK SQ    ( D) C2-2850 AT SUMNER ST                        VEH DIR =

 001 018670    I 04197 09  1  1  0 PEDEST  OTHR  PARKED                    W/300 FEET NO SPEC   NO TCO   DAYLGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4176 MAVERICK SQ      ( D) C2-2850 0155 FEET N OF SUMNER ST            VEH DIR =

 001 163675    P 06217 17  2  0  0 MV/TRAF OTHR  STRAGHT STRAGHT           NO SPEC    NO SPEC   SIGNAL   DAYLGT  CLEAR  DRY   NO SPEC
                                  (EB) C1-4176 MAVERICK SQ      ( D) C2-2850 AT SUMNER ST                        VEH DIR =

 NUMBER OF ACCIDENTS      4
 FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4176 AND C2-2850 IN BOSTON     MAV SQ @ SUMNER

 FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS   = 000002                           PEOPLE INJURED = 000002  SEV (1)=   0 (2)=   0 (3)=   1 (4)=   1 (5)=   0

 PDO * ACCIDENTS    = 000002                                               * PDO = PROPERTY DAMAGE ONLY
                      ------                                      ------
 TOTAL ACCIDENTS    = 000004                     TOTAL INJURIES = 000002

  COLL WITH        COLL TYPE      LIGHT COND        WEATH COND        MONTH          DAY OF WK        HOUR OF DAY            SEV DEFINED

 PEDEST     2    REAR       1   DAYLGT     4    CLEAR      4     JAN.      0     SUN     0     1 AM     0   1 PM    0 (1)= KILLED
 MV/TRAF    2    ANGL       0   DWN/DSK    0    FOGGY      0     FEB.      0     MON     0     2 AM     0   2 PM    0
 MV/PARKD   0    HEAD       0   DRK-LGT    0    CLDY       0     MARCH     1     TUE     2     3 AM     0   3 PM    0 (2)= MAJOR INJURY
 RR TR      0    OTHR       3   NO-LGTS    0    RAIN       0     APRIL     1     WED     1     4 AM     0   4 PM    1
 RDF/MFO    0                   NO SPEC    0    SNOW       0     MAY       0     THR     0     5 AM     0   5 PM    1 (3)= MINOR INJURY
 BICYCLE    0                                   SLEET      0     JUNE      1     FRI     1     6 AM     0   6 PM    0
 OVRTRND    0                                   N-SPC      0     JULY      0     SAT     0     7 AM     0   7 PM    0 (4)= INJURY NOT
 ROR/NC     0                                                    AUG.      1     N-S     0     8 AM     0   8 PM    0        VISIBLE
 MFO/SSI    0                                                    SEPT.     0                   9 AM     2   9 PM    0
 OTHER      0                                                    OCT.      0                   10AM     0   10PM    0 (5)= NOT SPECIFIED
 NO SPEC    0                                                    NOV.      0                   11AM     0   11PM    0
                                                                 DEC.      0                   12NN     0   12MD    0
                                                                 N-SPC     0                                N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS         7
  TRUCKS                 0
  TRAILERS               0
  TAXI                   0
  HANDICAP               0
  MOTORCYCLE             0
  EMERGENCY              0
  NOT SPEC. [illegible]
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                              COMMONWEALTH OF MASSACHUSETTS          TRAFFIC ACCIDENT REPORT                 PAGE    1
                              DEPARTMENT OF PUBLIC WORKS                   FOR PERIOD
                              TRAFFIC ENGINEERING SECTION            01/01/75  THRU 12/31/80               REPORT DATE 06/26/86

  BOSTON                 N  N  K                   INTERSECTION AT CI-4177 AND C2-2850
                         U  O  I                                                        BREMAN @ Summer
          T           H  .  .  L
          Y           -  V  I  L                  COLLISION MOTIONS                                                    ENVIRONMENTAL-CONDITIONS
 LOC CASE P           U  E  N  E  COLL     COLL  ************************** PEDESTRIAN  VEHICLE  TRAFFIC  ***************************
 NO.  NO. E DATE      R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION     ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * *****  ** ** ** ** *******  ****  *******  *******  *******  ********** ********* *******  ******* ***** ****  *******

 001 38247C P 03105 07    0  0 MV/TRAF  ANGL  STRAGHT  SLOWING           NO SPEC    NO SPEC  NO TCD    DAYLGT  CLEAR  DRY   NO DFCT
                                  (EB) C1-4177 BREMEN ST       ( D) C2-2850 AT SUMNER ST                       VEH DIR = N E

 NUMBER OF ACCIDENTS      1


 FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-4177 AND C2-2850 IN BOSTON

 FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000  PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 INJURY ACCIDENTS  = 000000                          PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 PDO * ACCIDENTS   = 000001                                          * PDO = PROPERTY DAMAGE ONLY
                     ------                                     ------
 TOTAL ACCIDENTS   = 000001                     TOTAL INJURIES = 000000

  COLL WITH         COLL TYPE      LIGHT COND        WEATH COND        MONTH        DAY OF WK       HOUR OF DAY           SEV DEFINED

 PEDEST     0     REAR      0    DAYLGT     1    CLEAR     1    JAN.    0    SUN    0    1 AM    0   1 PM    0 (1)= KILLED
 MV/TRAF    1     ANGL      1    DWN/DSK    0    FOGGY     0    FEB.    0    MON    1    2 AM    0   2 PM    0
 MV/PRKD    0     HEAD      0    DRK-LGT    0    CLDY      0    MARCH   1    TUE    0    3 AM    0   3 PM    0 (2)= MAJOR INJURY
 RR TR      0     OTHR      0    NO-LGTS    0    RAIN      0    APRIL   0    WED    0    4 AM    0   4 PM    0
 ROR/HFO    0                    NO SPEC    0    SNOW      0    MAY     0    THR    0    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE    0                                    SLEET     0    JUNE    0    FRI    0    6 AM    0   6 PM    0
 OVRTRND    0                                    N-SPC     0    JULY    0    SAT    0    7 AM    1   7 PM    0 (4)= INJURY NOT
 FOR/NC     0                                                   AUG.    0    N-S    0    8 AM    0   8 PM    0        VISIBLE
 HEC/SSI    0                                                   SEPT.   0                 9 AM    0   9 PM    0
 OTHER      0                                                   OCT.    0                 10AM    0   10PM    0 (5)= NOT SPECIFIED
 NO SPEC    0                                                   NOV.    0                 11AM    0   11PM    0
                                                                DEC.    0                 12NN    0   12MD    0
                                                                N-SPC   0                             N-SP    0

 TYPE OF VEHICLE COUNTS

  PASSENGER CARS         0
  TRUCKS                 0
  TRAILERS               0
  TAXI                   0
  HANDICAP               0
  MOTRCYCLE              0
  EMERGENCY              0
  NOT SPEC. REG.         0
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Summer @ Orleans

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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-2650 AND C2-4179 IN BOSTON

 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000003                           PEOPLE INJURED = 000004  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   3 (5)=   1

 PDO * ACCIDENTS  = 000003                                 * PDO = PROPERTY DAMAGE ONLY
                    ------                                   ------
 TOTAL ACCIDENTS  = 000006                           TOTAL INJURIES = 000004

  COLL WITH        COLL TYPE      LIGHT COND        WEATH COND        MONTH        DAY OF WK        HOUR OF DAY            SEV DEFINED

 PEDEST      0    REAR     1    DAYLGT      3    CLEAR     5    JAN.     0    SUN     1    1 AM    1   1 PM   0 (1)= KILLED
 MV/TRAF     3    ANGL     4    DAWN/DSK    0    FOGGY     0    FEB.     0    MON     0    2 AM    0   2 PM   1
 MV/PRKD     2    HEAD     0    DRK-LGT     3    CLDY      0    MARCH    2    TUE     2    3 AM    0   3 PM   1 (2)= MAJOR INJURY
 FR TR       0    OTHR     1    NO-LGTS     0    RAIN      1    APRIL    1    WED     0    4 AM    0   4 PM   0
 FOR/HED     0                  NO SPEC     0    SNOW      0    MAY      0    THR     0    5 AM    0   5 PM   0 (3)= MINOR INJURY
 BICYCLE     0                                   SLEET     0    JUNE     0    FRI     1    6 AM    0   6 PM   0
 OVRTRND     0                                   N-SPC     0    JULY     0    SAT     2    7 AM    0   7 PM   0 (4)= INJURY NOT
 ROP/NC      0                                                  AUG.     1    N-S     0    8 AM    0   8 PM   0        VISIBLE
 HFG/SSI     0                                                  SEPT.    0                 9 AM    0   9 PM   1
 OTHER       0                                                  OCT.     2                 10AM    0   10PM   0 (5)= NOT SPECIFIED
 NO SPEC     1                                                  NOV.     0                 11AM    0   11PM   0
                                                                DEC.     0                 12NN    0   12MD   1
                                                                N-SPC    0                             N-SP   1

TYPE OF VEHICLE COUNTS

 PASSENGER CARS          4
                T           H  .  .  L
                Y           O  V  I  L                        COLLISION MOTIONS                                                        ENVIRONMENTAL CONDITIONS
LOC CASE        P           U  C  N  E  COLL     COLL  ************************* PEDESTRIAN VEHICLE  TRAFFIC  ****************************
NO. NO.         E DATE      R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION     ACTION   CONTROL   LIGHT   WEATH SURF ROADWAY
*** ******      * *****    ** ** ** ** ******* ****  ******* ******* ******* ********** ********* *******  ******* ***** **** *******

001 204770 P 00239 14  2  0  0 MV/PRKD  REAR   PARKED   RT TURN            NO SPEC    NO SPEC   STOP      DAYLGT  CLEAR DRY  NO OFCT
                               ( U) C1-2850 SUMNER ST          (E8) C2-4179 AT ORLEANS                        VEH DIR =    N

001 019992 I 03157 00  2  1  0 NO SPEC  ANGL   STRAGHT  NO SPEC            NO SPEC    NO SPEC   STOP      DRK-LGT RAIN  WET  NO SPEC
                               ( U) C1-2650 SUMNER             (E8) C2-4179 AT ORLEANS                        VEH DIR =

001 152207 I 10167 01  2  2  0 MV/TRAF  ANGL   STRAGHT  STRAGHT            NO SPEC    NO SPEC   NO TCO    DAYLGT  CLEAR DRY  NO OFCT
                               ( U) C1-2650 SUMNER             (E8) C2-4179 AT ORLEANS                        VEH DIR = W S

                                                PA. CAR  PA. CAR
001 042558 I 03220 [illegible] [illegible]  1  0 MV/TRAF  ANGL   STRAGHT  STRAGHT            NO SPEC    NO SPEC   STOP      DRK-LGT CLEAR DRY  NO OFCT
                               ( U) C1-2650 SUMNER ST          (E8) C2-4179 AT ORLEANS ST                     VEH DIR = S E

                                                PA. CAR  PA. CAR
001 32716A P 04010 15  2  0  0 MV/PRKD  OTHR   STRAGHT  PARKED             NO SPEC    NO SPEC   NO TCO    DAYLGT  CLEAR DRY  NO OFCT
                               ( U) C1-2650 289 SUMNER ST      (E8) C2-4179 AT ORLEANS ST                     VEH DIR =

001 546506 P 10245 24  2  0  0 MV/TRAF  ANGL   LT TURN  BACKING            NO SPEC    NO SPEC   STOP      DRK-LGT CLEAR DRY  NO OFCT
                               ( U) C1-2650 SUMNER ST          (E8) C2-4179 AT ORLEANS ST                     VEH DIR =

NUMBER OF ACCIDENTS      6
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= 6

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Orleans @ Sumner

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FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-4179 AND C2-2850 IN BOSTON

FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS  = 000001                           PEOPLE INJURED = 000001  SEV (1)=   0 (2)=   1 (3)=   0 (4)=   0 (5)=   0

PDO * ACCIDENTS   = 000006                                          * PDO = PROPERTY DAMAGE ONLY
                    ------                                   ------
TOTAL ACCIDENTS   = 000007                   TOTAL INJURIES = 000001

 COLL WITH       COLL TYPE     LIGHT COND       WEATH COND       MONTH          DAY OF WK       HOUR OF DAY               SEV DEFINED

PEDEST       0   REAR      2   DAYLGT      5    CLEAR     6    JAN.      0    SUN     0    1 AM    0   1 PM    0 (1)= KILLED
MV/TRAF      5   ANGL      2   DAWN/DSK    0    FOGGY     0    FEB.      0    MON     1    2 AM    0   2 PM    0
MV/PRKD      0   HEAD      0   DRK-LGT     2    CLDY      0    MARCH     1    TUE     1    3 AM    0   3 PM    1 (2)= MAJOR INJURY
RR TR        0   OTHR      3   NO-LGTS     0    RAIN      1    APRIL     1    WED     1    4 AM    0   4 PM    1
POP/PED      0                 NO SPEC     0    SNOW      0    MAY       0    THR     1    5 AM    0   5 PM    0 (3)= MINOR INJURY
BICYCLE      0                                  SLEET     0    JUNE      0    FRI     2    6 AM    0   6 PM    1
LVFTEND      0                                  N-SPC     0    JULY      0    SAT     1    7 AM    0   7 PM    0 (4)= INJURY NOT
FOR/NC       0                                                 AUG.      2    N-S     0    8 AM    0   8 PM    0        VISIBLE
HFG/SSI      0                                                 SEPT.     0                 9 AM    0   9 PM    1
OTHER        0                                                 OCT.      2                 10AM    0   10PM    1 (5)= NOT SPECIFIED
NO SPEC      2                                                 NOV.      1                 11AM    0   11PM    0
                                                               DEC.      0                 12NN    2   12MD    0
                                                               N-SPC     0                             N-SP    0

  BOSTON                N  N  K
                        U  O  I
           T         H  .  .  L
           Y         U  V  I  L                  COLLISION ACTIONS                                                   ENVIRONMENTAL CONDITIONS
LOC CASE   P         U  E  N  E  COLL     COLL   **************************  PEDESTRIAN  VEHICLE   TRAFFIC   ******************************
NO.  NO.   E DATE    R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3      ACTION     ACTION   CONTROL   LIGHT    WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** *******   ****   *******  *******  *******  **********  ********* *******   *******  *****  ****  *******

001 004721 P 08035 16  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT             NO SPEC     NO SPEC   STOP      DAYLGT   RAIN   WET   NO SPEC
                               (EB) C1-4179 ORLEANS           ( 0) C2-2850 AT SUMNER                                VEH DIR =

001 056470 P 04245 12  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT             NO SPEC     NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                               (EB) C1-4179 ORLEANS ST        ( 0) C2-2850 AT SUMNER ST                             VEH DIR =

001 019995 1 03157 22  2  1  0 NO SPEC  OTHR   LT TURN  STRAGHT             NO SPEC     NO SPEC   NO TCD    DRK-LGT  CLEAR  DRY   H-R-B
                               (EB) C1-4179 ORLEANS ST        ( 0) C2-2850 AT SUMNER ST                             VEH DIR = W E

001 102142 P 03157 15  2  0  0 MV/TRAF  OTHR   STRAGHT  STRAGHT             NO SPEC     NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO SPEC
                               (EB) C1-4179 ORLEANS ST        ( 0) C2-2850 AT SUMNER ST                             VEH DIR =

001 179064 P 10053 14  3  0  0 MV/TRAF  REAR   STRT/PK  STOP SC  STRT/PK    NO SPEC     NO SPEC   STOP      DAYLGT   CLEAR  OTHR  NO DFCT
                               (EB) C1-4179 ORLEANS           ( 0) C2-2850 0050 FEET S OF SUMNER ST                 VEH DIR = N N N

001 227600 P 11113 1[illegible]  2  0  0 MV/TRAF  REAR   STRAGHT  STRAGHT             NO SPEC     NO SPEC   STOP      DRK-LGT  CLEAR  DRY   NO DFCT
                               (EB) C1-4179 ORLEANS           ( 0) C2-2850 AT SUMNER ST                             VEH DIR =

001 [illegible] P [illegible]  [illegible]  0 NO SPEC  OTHR   PARKED   NO SPEC              NO SPEC     NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                               (EB) C1-4179 ORLEANS ST        ( 0) C2-2850 AT SUMNER ST                             VEH DIR =

NUMBER OF ACCIDENTS     7
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Orleo

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FOR PERIOD 01/01/79 THRU 12/31/80    INTERSECTION AT C1-2850 AND C2-4160 IN BOSTON   SUMNER @ COTTAGE
 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0
 INJURY ACCIDENTS = 000002                           PEOPLE INJURED = 000002  SEV (1)=   0 (2)=   0 (3)=   1 (4)=   1 (5)=   0
 PDO * ACCIDENTS  = 000006                                 * PDO = PROPERTY DAMAGE ONLY
                    ------                                 ------
 TOTAL ACCIDENTS  = 000008                           TOTAL INJURIES = 000002

  COLL WITH        COLL TYPE     LIGHT COND        WEATH COND       MONTH        DAY OF WK        HOUR OF DAY          SEV DEFINED

 PEDEST      1     REAR     2    DAYLGT      3     CLEAR      5     JAN.     1   SUN      0    1 AM    0  1 PM    1 (1)= KILLED
 MV/TRAF     5     ANGL     3    DWN/DSK     2     FOGGY      0     FEB.     0   MON      3    2 AM    1  2 PM    0
 MV/PRKD     1     HEAD     0    DRK-LGT     2     CLDY       1     MARCH    1   TUE      0    3 AM    0  3 PM    0 (2)= MAJOR INJURY
 RR TR       0     OTHR     3    NO-LGTS     0     RAIN       0     APRIL    1   WED      2    4 AM    0  4 PM    0
 ROP/HFO     0                   NO SPEC     1     SNOW       0     MAY      0   THR      1    5 AM    0  5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                     SLEET      0     JUNE     1   FRI      1    6 AM    0  6 PM    1
 CVPTRNO     0                                     N-SPC            JULY     2   SAT      1    7 AM    0  7 PM    0 (4)= INJURY NOT
 ROR/NC      0                                                      AUG.     1   N-S      0    8 AM    1  8 PM    1        VISIBLE
 HFO/SSI     0          Pass Cars = 1                               SEPT.    1                 9 AM    0  9 PM    1
 OTHER       0                                                      OCT.     0                10AM     0  10PM    1 (5)= NOT SPECIFIED
 NO SPEC     1                                                      NOV.     0                11AM     0  11PM    0
                                                                    DEC.     0                12NN     0  12MD    0
                                                                    N-SPC    0                           N-SP    0

                T          H  V  I- L
                Y          -  -  N  E                          COLLISION ACTIONS                                               ENVIRONMENTAL CONDITIONS
 LOC CASE       P          J  E  N  E  COLL     COLL  ************************* PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO.  NO.       E DATE     R  H  J  D  WITH     TYPE  VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL  LIGHT   WEATH  SURF  ROADWAY
 *** ******     * *****   ** ** ** **  *******  ****  *******  *******  *******  **********  ********* *******  ******* *****  ****  *******

                                                      NOTSPEC  PA. CAR
 001 401932 P 07040 21  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT            NO SPEC     NO SPEC   NO TCD   DWN/DSK CLEAR  DRY   NO DFCT
                                  ( D) C1-2850 SUMNER                (EB) C2-4160 AT COTTAGE                      VEH DIR = E S

 001 180333 P 03303 22  2  0  0 NO SPEC  OTHR  NO SPEC  NO SPEC            NO SPEC     NO SPEC   NO TCD   NO SPEC N-SPC  OTHR  NO SPEC
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE                      VEH DIR =     N

 001 234403 I 05207 13  1  1  0 PEDEST   OTHR  NO SPEC                     OTHER       NO SPEC   NO TCD   DAYLGT  CLEAR  DRY   OTHER
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE ST                   VEH DIR =

 001 200245 P 04077 02  2  0  0 MV/TRAF  ANGL  STRAGHT  STRAGHT            NO SPEC     NO SPEC   STOP     DAYLGT  CLEAR  DRY   NO DFCT
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE ST                   VEH DIR =

 001 044354 P [illegible]   2  0  0 MV/PRKD  REAR  NO SPEC  STRAGHT            NO SPEC     NO SPEC   NO TCD   DRK-LGT CLDY   WET   NO DFCT
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE ST                   VEH DIR = E E

 001 065365 I 04255 20  2  1  0 MV/TRAF  ANGL  STRAGHT  STRAGHT            AT INTER    NO SPEC   STOP     DRK-LGT CLEAR  OTHR  NO DFCT
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE ST                   VEH DIR = E S

 001 [illegible]                0 MV/TRAF  REAR  STRAGHT  STRAGHT  NO SPEC  NO SPEC     NO SPEC   NO TCD   DWN/DSK CLEAR  DRY   NO DFCT
                                  ( D) C1-2850 SUMNER ST             (EB) C2-4160 AT COTTAGE ST                   VEH DIR =

 001 [illegible]                  MV/TRAF  OTHR  STRAGHT  [illegible]        NO SPEC     NO SPEC   NO TCD   DAYLGT  CLEAR  DRY   NO DFCT
                                  ( D) C1-2850 SUMNER ST             ( ) C2-4160 AT COTTAGE ST                    VEH DIR = N N

 NUMBER OF ACCIDENTS
```

(E-41)

COTTAGE@ SUMNER

```
FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4180 AND C2-2850 IN BOSTON

FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

INJURY ACCIDENTS = 000001                           PEOPLE INJURED = 000001  SEV (1)=   0 (2)=   1 (3)=   0 (4)=   0 (5)=   0

PDO * ACCIDENTS  = 000004                                    * PDO = PROPERTY DAMAGE ONLY
                   ------                          ------
TOTAL ACCIDENTS  = 000005                  TOTAL INJURIES = 000001

 COLL WITH       COLL TYPE     LIGHT COND       WEATH COND       MONTH        DAY OF WK       HOUR OF DAY             SEV DEFINED

PEDEST      0   REAR     0   DAYLGT       1   CLEAR      2   JAN.     0   SUN     0   1 AM    0   1 PM   0 (1)= KILLED
MV/TRAF     4   ANGL     4   DAWN/DSK     0   FOGGY      0   FEB.     1   MON     1   2 AM    0   2 PM   0
MV/PRKD     1   HEAD     0   DRK-LGT      4   CLDY       0   MARCH    1   TUE     0   3 AM    0   3 PM   0 (2)= MAJOR INJURY
RR TF       0   OTHR     1   NO-LGTS      0   RAIN       2   APRIL    0   WED     1   4 AM    0   4 PM   0
RUN/OFF     0                NO SPEC      0   SNOW       0   MAY      0   THU     0   5 AM    0   5 PM   0 (3)= MINOR INJURY
BICYCLE     0                                 SLEET      0   JUNE     0   FRI     1   6 AM    0   6 PM   0
OVERTRNE    0                                 N-SPC      1   JULY     0   SAT     2   7 AM    0   7 PM   2 (4)= INJURY NOT
RUN/NC      0                                                AUG.     1   N-S     0   8 AM    0   8 PM   0       VISIBLE
AFC/SS1     0                                                SEPT.    0               9 AM    0   9 PM   1
OTHER       0                                                OCT.     2               10AM    0   10PM   0 (5)= NOT SPECIFIED
NO SPEC     0                                                NOV.     0               11AM    0   11PM   0
                                                             DEC.     0               12NN    1   12MD   1
                                                             N-SPC    0                           N-SP   0

TYPE OF VEHICLE COUNTS

 PASSENGER CARS         4
 TRUCKS                 0
                 T          D  V  I  L                    COLLISION MOTIONS                                                         ENVIRONMENTAL CONDITIONS
LOC CASE         Y          O  E  N  E  COLL     COLL  *************************  PEDESTRIAN  VEHICLE   TRAFFIC  ******************************
NO.  NO.         P          W  H  J  O  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH   SURF  ROADWAY
                 E DATE     K
*** ****** * ***** ** ** ** ** *******  ****  *******  *******  *******  ********** *********  *******   *******  *****   ****  *******

                                                     PA. CAR  PA. CAR
001 369377 [illegible] [illegible] [illegible] [illegible] 0 0 MV/PRKD ANGL STRAGHT PARKED   NO SPEC     NO SPEC   NO TCD   DRK-LGT  CLEAR   DRY   NO DFCT
                                  (EB) C1-4180 COTTAGE ST          ( D) C2-2850 AT SUMNER ST                                 VEH DIR =

                                                     PA. CAR  PA. CAR
001 094[illegible] P 101[illegible] 19  2  0  0 MV/TRAF OTHR OTHER  OTHER        NO SPEC     NO SPEC   NO TCD   DRK-LGT  RAIN    WET   NO DFCT
                                  (WB) C1-4180 COTTAGE ST          ( D) C2-2850 0030 FEET N OF SUMNER ST                     VEH DIR = S S

001 390692 P 03245 21  2  0  0 MV/TRAF ANGL  STRAGHT  LT TURN            NO SPEC     NO SPEC   NO TCD   DRK-LGT  CLEAR   WET   NO SPEC
                                  (NB) C1-4180 COTTAGE ST          ( U) C2-2850 AT SUMNER ST                                 VEH DIR =

001 17[illegible] [illegible] [illegible] [illegible] [illegible] 0 MV/TRAF ANGL STRAGHT STRAGHT   AT INTER    NO SPEC   STOP     DAYLGT   N-SPC   DRY   NO DFCT
                                  (EB) C1-4180 COTTAGE ST          ( U) C2-2850 AT SUMNER ST                                 VEH DIR = S E

001 [illegible] P [illegible] [illegible] [illegible] 0 0 MV/TRAF ANGL RT TURN STRAGHT   NO SPEC     NO SPEC   NO TCD   DRK-LGT  RAIN    WET   NO DFCT
                                  (EB) C1-4180 COTTAGE ST          ( ) C2-2850 AT SUMNER ST                                  VEH DIR = S E

NUMBER OF ACCIDENTS      5
```

Pass/cars = 4

E-42

SUMNER @ JEFFRIES

```
FOR PERIOD 01/01/77 THRU 12/31/80     INTERSECTION AT C1-2650 AND C2-4205 IN BOSTON

 FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

 INJURY ACCIDENTS = 000001                            PEOPLE INJURED = 000001  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   1 (5)=   0

 PDO * ACCIDENTS   = 000002                                                  * PDO = PROPERTY DAMAGE ONLY
                     ------                                          ------
 TOTAL ACCIDENTS   = 000003                           TOTAL INJURIES = 000001

  COLL WITH        COLL TYPE      LIGHT CONDS         WEATH COND          MONTH        DAY OF WK          HOUR OF DAY             SEV DEFINED

PEDEST        0   REAR       1   DAYLGT       2   CLEAR        2   JAN.       0   SUN       1   1 AM     1   1 PM     0 (1)= KILLED
MV/TRAF       2   ANGL       1   DWN/DSK      0   FOGGY        0   FEB.       1   MON       0   2 AM     0   2 PM     0
MV/PRKD       1   HEAD       1   DRK-LGT      1   CLDY         1   MARCH      0   TUE       0   3 AM     0   3 PM     0 (2)= MAJOR INJURY
RR TF         0   OTHR       0   NO-LGTS      0   RAIN         0   APRIL      0   WED       0   4 AM     0   4 PM     2
PDR/FFC       0                  NO SPEC      0   SNOW         0   MAY        0   THR       1   5 AM     0   5 PM     0 (3)= MINOR INJURY
BICYCLE       0                                   SLEET        0   JUNE       0   FRI       0   6 AM     0   6 PM     0
OVRTRND       0                                   N-SPC        0   JULY       0   SAT       1   7 AM     0   7 PM     0 (4)= INJURY NOT
FOF/NC        0                                                    AUG.       0   N-S       0   8 AM     0   8 PM     0       VISIBLE
PFC/SS1       0                                                    SEPT.      0                 9 AM     0   9 PM     0
OTHER         0                                                    OCT.       0                 10AM     0   10PM     0 (5)= NOT SPECIFIED
NO SPEC       0                                                    NOV.       0                 11AM     0   11PM     0
                                                                   DEC.       0                 12NN     0   12MD     0
                                                                   N-SPC      0                              N-SP     0

TYPE OF VEHICLE COUNTS


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                          DEPARTMENT OF PUBLIC WORKS                FOR PERIOD
                          TRAFFIC ENGINEERING SECTION           01/01/75  THRU 12/31/80                 REPORT DATE 06/26/86

  BOSTON                N  N  K                   INTERSECTION AT C1-2850 AND C2-4265
                        O  O  I
         T           H  .  .  L
         Y           O  V  I  L                COLLISION ACTIONS                                                    ENVIRONMENTAL CONDITIONS
LOC CASE P           U  E  N  E  COLL    COLL   ****************************  PEDESTRIAN  VEHICLE   TRAFFIC   ******************************
NO.  NO. E DATE      R  H  J  D  WITH    TYPE    VEH 1    VEH 2    VEH 3      ACTION      ACTION   CONTROL    LIGHT   WEATH  SURF  ROADWAY
*** ****** * *****  ** ** ** ** *******  ****   *******  *******  *******   **********  ********* *******   *******  *****  ****  *******

001-182728 1 05067  16  2  1  0 MV/TRAF  ANGL   RT-TURN  STRT/PK             NO SPEC    ENT PEDN  NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
                               ( 0) C1-2650 SUMNER ST       (EB) C2-4205 AT JEFFRIES ST                           VEH DIR = N N

001 125404 P [illegible]  2  0  0 MV/TRAF  HEAD   LT TURN  STRAGHT             NO SPEC    NO SPEC   STOP      DAYLGT   CLDY   WET   NO DFCT
                               ( 0) C1-2650 SUMNER ST       (  ) C2-4205 AT JEFFRIES ST                           VEH DIR =

001 249591 P 02199  01  2  0  0 MV/PRKD  REAR   STRAGHT  PARKED              NO SPEC    NO SPEC   NO TCD    DRK-LGT  CLEAR  WET   OTHER
                               ( 0) C1-2850 SUMNER ST       (  ) C2-4205 AT JEFFRIES ST                           VEH DIR =    S

NUMBER OF ACCIDENTS      3
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JEFFRIES @ SUMNER

```
FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

INJURY ACCIDENTS  = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

PDO * ACCIDENTS   = 000003                                             * PDO = PROPERTY DAMAGE ONLY
                    ------                                   ------
TOTAL ACCIDENTS   = 000003                    TOTAL INJURIES = 000000

 COLL WITH       COLL TYPE     LIGHT COND       WEATH COND        MONTH        DAY OF WK         HOUR OF DAY             SEV DEFINED

PEDEST     0   REAR     0   DAYLGT      3   CLEAR      1   JAN.     0   SUN    1    1 AM   0  1 PM    1 (1)= KILLED
MV/TRAF    .   ANGL     0   DRN/DSK     0   FOGGY      0   FEB.     0   MON    1    2 AM   0  2 PM    0
MV/PARK    0   HEAD     1   DRK-LGT     0   CLDY       0   MARCH    1   TUE    1    3 AM   0  3 PM    1 (2)= MAJOR INJURY
FR TR      0   OTHR     2   NO-LGTS     0   RAIN       0   APRIL    0   WED    0    4 AM   0  4 PM    0
FOR/HFE    0                NO SPEC     0   SNOW       0   MAY      0   THR    0    5 AM   0  5 PM    0 (3)= MINOR INJURY
BICYCLE    0                                SLEET      0   JUNE     0   FRI    0    6 AM   0  6 PM    0
OVRTRNE    0                                N-SPC      2   JULY     1   SAT    0    7 AM   0  7 PM    0 (4)= INJURY NOT
FOF/NC     0                                               AUG.     0   N-S    0    8 AM   0  8 PM    0        VISIBLE
HFL/SSI    0                                               SEPT.    0               9 AM   0  9 PM    0
OTHER      0                                               OCT.     1              10AM    0  10PM    0 (5)= NOT SPECIFIED
NO SPEC    2                                               NOV.     0              11AM    0  11PM    0
                                                           DEC.     0              12NN    0  12MD    1
                                                           N-SPC    0                         N-SP    0


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                         DEPARTMENT OF PUBLIC WORKS              FOR PERIOD
                         TRAFFIC ENGINEERING SECTION       01/01/75  THRU 12/31/80                   REPORT DATE 06/26/86

 BOSTON                 N  N  K          INTERSECTION AT C1-4205 AND C2-2650
                        C  O  I
          I          I  V  I  L
          Y          U  .  .  L              COLLISION MOTIONS                                                    ENVIRONMENTAL CONDITIONS
LOC CASE  P          O  E  N  E  COLL    COLL  ************************   PEDESTRIAN  VEHICLE   TRAFFIC   *****************************
NO. NO.   E DATE     R  H  J  L  WITH    TYPE  VEH 1    VEH 2    VEH 3      ACTION     ACTION   CONTROL    LIGHT    WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** ******* **** ******* ******* *******  *********** ********* *******   *******  *****  ****  *******

001 ..6667 P 01297 24  .  0  0 NO SPEC OTHR NO SPEC  STRAGHT              NO SPEC   ENT MEDN  NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                              (EB) C1-4205 JEFFRIES ST      ( D) C2-2650 AT SUMNER                             VEH DIR =

001 ( 1.6.. P 01237 1.  2  0  0 MV/TRAF HEAD LT TURN STRAGHT              NO SPEC   NO SPEC   NO TCD   DAYLGT   N-SPC  OTHR  NO SPEC
                              (EB) C1-4205 JEFFRIES ST      ( . ) C2-2650 AT SUMNER ST                         VEH DIR =

001 .53427 P 10308 1.  2  0  0 NO SPEC OTHR NO SPEC  NO SPEC              NO SPEC   NO SPEC   NO TCD   DAYLGT   N-SPC  OTHR  NO SPEC
                              (EB) C1-4205 JEFFRIES ST      ( D) C2-2650 AT SUMNER ST                          VEH DIR =

NUMBER OF ACCIDENTS       3
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E-43

E-44

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                         DEPARTMENT OF PUBLIC WORKS               FOR PERIOD
                         TRAFFIC ENGINEERING SECTION         01/01/75 THRU 12/31/80               REPORT DATE 06/26/86

  BOSTON                  H  N  K                  INTERSECTION AT C1-1289 AND C2-4179    WEBSTER @ ORLEANS
                          O  O  I
            T          H  .  .  L
            Y          O  V  I  L                COLLISION MOTIONS                                                ENVIRONMENTAL CONDITIONS
 LOC CASE   P          U  E  N  E  COLL    COLL  *************************** PEDESTRIAN  VEHICLE  TRAFFIC  ******************************
 NO.  NO.   E  DATE    R  H  J  D  WITH    TYPE  VEH 1     VEH 2    VEH 3    ACTION     ACTION   CONTROL  LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** ******* **** ******* ******* ******* ********** ********* ******* ******* ***** **** *******

                                                 TRUCK     NOTSPEC
 001 339280 P 03020 00  2  0  0 MV/PRKD ANGL  PARKED    NO SPEC             NO SPEC    NO SPEC  NO TCD   NO SPEC CLEAR  DRY   NO DFCT
                                (WR) C1-1289 WEBSTER ST          (EB) C2-4179 AT ORLEANS ST                   VEH DIR =

                                                 PA. CAR   PA. CAR
 001 327546 P 04010 06  2  0  0 MV/TRAF OTHR  RT TURN   STRAGHT             NO SPEC    NO SPEC  NO TCD   DAYLGT  CLEAR  DRY   NO DFCT
                                (WR) C1-1289 WEBSTER ST          (EB) C2-4179 AT ORLEANS ST                   VEH DIR =

 001 54056J P 04236 21  2  0  0 MV/TRAF ANGL  LT TURN   STRAGHT             NO SPEC    NO SPEC  NO TCD   DRK-LGT CLEAR  DRY   NO DFCT
                                (WR) C1-1289 WEBSTER ST          (EB) C2-4179 AT ORLEANS ST                   VEH DIR = S W

 001 091195 P 05038 10  2  0  0 NO SPEC OTHR  NO SPEC   NO SPEC             NO SPEC    NO SPEC  NO TCD   DAYLGT  N-SPC  OTHR  NO SPEC
                                (WR) C1-1289 WEBSTER ST          (EB) C2-4179 AT ORLEANS ST                   VEH DIR =

 NUMBER OF ACCIDENTS      4
 FOR PERIOD 01/01/75 THRU 12/31/80    INTERSECTION AT C1-1289 AND C2-4179 IN BOSTON       WEBSTER @ ORLEANS
   FATAL ACCIDENTS   = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000 SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   INJURY ACCIDENTS  = 000000                           PEOPLE INJURED = 000000 SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

   PDO * ACCIDENTS   = 000004                                                   * PDO = PROPERTY DAMAGE ONLY
                       ------                                         ------
   TOTAL ACCIDENTS   = 000004                           TOTAL INJURIES = 000000

   COLL WITH        COLL TYPE      LIGHT COND       WEATH COND        MONTH        DAY OF WK        HOUR OF DAY              SEV DEFINED

 PEDEST      0   REAR      0   DAYLGT     2   CLEAR     3   JAN.      0   SUN    1   1 AM    0  1 PM   0 (1)= KILLED
 MV/TRAF     2   ANGL      2   DWN/DSK    0   FOGGY     0   FEB.      0   MON    0   2 AM    C  2 PM   0
 MV/PRKD     1   HEAD      0   DRK-LGT    1   CLDY      0   MARCH     1   TUE    1   3 AM    0  3 PM   0 (2)= MAJOR INJURY
 RR TR       0   OTHR      2   NO-LGTS    0   RAIN      0   APRIL     2   WED    1   4 AM    0  4 PM   0
 POR/HFO     0                 NO SPEC    1   SNOW      0   MAY       1   THR    0   5 AM    0  5 PM   0 (3)= MINOR INJURY
 BICYCLE     0                                SLEET     0   JUNE      0   FRI    1   6 AM    1  6 PM   0
 OVRTPND     C                                N-SPC     1   JULY      C   SAT    0   7 AM    0  7 PM   0 (4)= INJURY NOT
 ROP/NC      0                                              AUG.      0   N-S    0   8 AM    0  8 PM   0        VISIBLE
 PED/SSI     0                                              SEPT.     0              9 AM    0  9 PM   1
 OTHER       0                                              OCT.      0              10AM    1  10PM   0 (5)= NOT SPECIFIED
 NO SPEC     1                                              NOV.      0              11AM    0  11PM   0
                                                            DEC.      0              12NN    C  12MD   0
                                                            N-SPC     0                         N-SP   1

 TYPE OF VEHICLE COUNTS

   PASSENGER CARS     2
   TRUCKS             1
   TRAILERS           0
   TAXI               0
   HANDICAP           0
   MOTORCYCLE         0
   EMERGENCY          0
   NOT SPEC. REG.     1
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                                   COMMONWEALTH OF MASSACHUSETTS        TRAFFIC ACCIDENT REPORT                    PAGE    1
                                   DEPARTMENT OF PUBLIC WORKS                 FOR PERIOD
                                   TRAFFIC ENGINEERING SECTION          01/01/75 THRU 12/31/80                    REPORT DATE 06/26/86

  BOSTON               N  N  K                            INTERSECTION AT C1-4179 AND C2-1289    ORLEANS @ WEBSTER
                       O  O  I
            T       H  .  .  L
            Y       O  V  I  L                        COLLISION MOTIONS                                            ENVIRONMENTAL CONDITIONS
LOC CASE    P       U  E  N  E  COLL     COLL  ************************** PEDESTRIAN  VEHICLE   TRAFFIC  ******************************
NO.  NO.    E DATE  R  H  J  D  WITH     TYPE   VEH 1     VEH 2    VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** ******* ****  *******  *******  ******* ********** ********* *******  ******* *****  ****  *******

                                              PA. CAR   PA. CAR
001 377967 P 05150 22  2  0  0 NO SPEC  OTHR  STRAGHT   PARKED             NO SPEC    NO SPEC   NO TCD   DRK-LGT  N-SPC  OTHR  NO DFCT
                             (EB) C1-4179 ORLEANS            (WR) C2-1289 AT WEBSTER                            VEH DIR = N E

                                              PA. CAR   PA. CAR
001 015397 P 08230 10  2  0  0 MV/TRAF  ANGL  STRAGHT   STRT/PK            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                             (EB) C1-4179 ORLEANS ST         (WR) C2-1289 AT WEBSTER ST                         VEH DIR = N N

001 157382 P 05137 11  2  0  0 MV/TRAF  ANGL  STRAGHT   STRAGHT            NO SPEC    NO SPEC   NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
                             (EB) C1-4179 ORLEANS ST         (WR) C2-1289 AT WEBSTER ST                         VEH DIR = W S

NUMBER OF ACCIDENTS       3
FOR PERIOD 01/01/75 THRU 12/31/80      INTERSECTION AT C1-4179 AND C2-1289 IN BOSTON
              75             80                                                             ORLEANS  @ WEBSTER
 FATAL ACCIDENTS  = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 INJURY ACCIDENTS = 000000                           PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

 PDO * ACCIDENTS  = 000003                                                    * PDO = PROPERTY DAMAGE ONLY
                    ------                                         ------
 TOTAL ACCIDENTS  = 000003                           TOTAL INJURIES = 000000

  COLL WITH         COLL TYPE        LIGHT COND         WEATH COND        MONTH        DAY OF WK        HOUR OF DAY           SEV DEFINED

PEDEST      0    REAR      0    DAYLGT      2    CLEAR     2    JAN.     0    SUN     0    1 AM    0  1 PM    0 (1)= KILLED
MV/TRAF     2    ANGL      2    DWN/DSK     0    FOGGY     0    FEB.     0    MON     0    2 AM    0  2 PM    0
MV/PRKD     0    HEAD      0    DRK-LGT     1    CLDY      0    MARCH    0    TUE     0    3 AM    0  3 PM    0 (2)= MAJOR INJURY
RR TF       0    OTHR      1    NO-LGTS     0    RAIN      0    APRIL    0    WED     0    4 AM    0  4 PM    0
ROR/FFO     0                   NO SPEC     0    SNOW      0    MAY      2    THR     1    5 AM    0  5 PM    0 (3)= MINOR INJURY
BICYCLE     0                                    SLEET     0    JUNE     0    FRI     1    6 AM    0  6 PM    0
OVRTRND     0                                    N-SPC     1    JULY     0    SAT     1    7 AM    0  7 PM    0 (4)= INJURY NOT
ROR/NC      0                                                   AUG.     1    N-S     0    8 AM    0  8 PM    0         VISIBLE
HFD/SSI     0                                                   SEPT.    0                 9 AM    0  9 PM    0
OTHER       0                                                   OCT.     0                 10AM    1  10PM    1 (5)= NOT SPECIFIED
NO SPEC     1                                                   NOV.     0                 11AM    1  11PM    0
                                                                DEC.     0                 12NN    0  12MD    0
                                                                N-SPC    0                            N-SP    0

TYPE OF VEHICLE COUNTS

 PASSENGER CARS       4
 TRUCKS               0
 TRAILERS             0
 TAXI                 0
 HANDICAP             0
 MOTORCYCLE           0
 EMERGENCY            0
 NOT SPEC. REG.       0
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C2-4179 AND C1-4172 IN BOSTON      ORLEANS @ MARGINAL
FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

INJURY ACCIDENTS = 000000                             PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

PDO * ACCIDENTS    = 000000                                                 * PDO = PROPERTY DAMAGE ONLY
                     ------                                    ------
TOTAL ACCIDENTS    = 000000                        TOTAL INJURIES = 000000

 COLL WITH       COLL TYPE      LIGHT COND       WEATH COND         MONTH        DAY OF WK         HOUR OF DAY              SEV DEFINED

PEDEST      0   REAR      0    DAYLGT     0    CLEAR      0    JAN.      0    SUN      0     1 AM    0  1 PM    0 (1)= KILLED
MV/TRAF     0   ANGL      0    DWN/DSK    0    FOGGY      0    FEB.      0    MON      0     2 AM    0  2 PM    0
MV/PRKD     0   HEAD      0    DRK-LGT    0    CLDY       0    MARCH     0    TUE      0     3 AM    0  3 PM    0 (2)= MAJOR INJURY
RR TR       0   OTHR      0    NO-LGTS    0    RAIN       0    APRIL     0    WED      0     4 AM    0  4 PM    0
ROR/HFO     0                  NO SPEC    0    SNOW       0    MAY       0    THR      0     5 AM    0  5 PM    0 (3)= MINOR INJURY
BICYCLE     0                                  SLEET      0    JUNE      0    FRI      0     6 AM    0  6 PM    0
OVRTRND     0                                  N-SPC      0    JULY      0    SAT      0     7 AM    0  7 PM    0 (4)= INJURY NOT
ROR/NC      0                                                  AUG.      0    N-S      0     8 AM    0  8 PM    0        VISIBLE
HED/SSI     0                                                  SEPT.     0                   9 AM    0  9 PM    0
OTHER       0                                                  OCT.      0                  10AM     0 10PM     0 (5)= NOT SPECIFIED
NO SPEC     0                                                  NOV.      0                  11AM     0 11PM     0
                                                               DEC.      0                  12NN     0 12MD     0
                                                               N-SPC     0                           N-SP       0
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FOR PERIOD 01/01/75 THRU 12/31/80     INTERSECTION AT C1-4172 AND C2-4179 IN BOSTON    MARGINAL @ ORLEANS
FATAL ACCIDENTS    = 000000  PEOPLE KILLED = 000000   PEOPLE INJURED = 000000  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    0

INJURY ACCIDENTS = 000001                             PEOPLE INJURED = 000001  SEV (1)=    0 (2)=    0 (3)=    0 (4)=    0 (5)=    1

PDO * ACCIDENTS    = 000000                                                 * PDO = PROPERTY DAMAGE ONLY
                     ------                                    ------
TOTAL ACCIDENTS    = 000001                        TOTAL INJURIES = 000001

 COLL WITH       COLL TYPE      LIGHT COND       WEATH COND         MONTH        DAY OF WK         HOUR OF DAY              SEV DEFINED

PEDEST      0   REAR      0    DAYLGT     0    CLEAR      0    JAN.      0    SUN      0     1 AM    0  1 PM    0 (1)= KILLED
MV/TRAF     0   ANGL      0    DWN/DSK    0    FOGGY      0    FEB.      0    MON      0     2 AM    0  2 PM    0
MV/PRKD     0   HEAD      0    DRK-LGT    0    CLDY       0    MARCH     0    TUE      0     3 AM    0  3 PM    0 (2)= MAJOR INJURY
RR TR       0   OTHR      1    NO-LGTS    0    RAIN       0    APRIL     0    WED      0     4 AM    0  4 PM    0
ROR/HFO     0                  NO SPEC    1    SNOW       0    MAY       0    THR      0     5 AM    0  5 PM    0 (3)= MINOR INJURY
BICYCLE     0                                  SLEET      0    JUNE      0    FRI      0     6 AM    0  6 PM    0
OVRTRND     0                                  N-SPC      1    JULY      0    SAT      0     7 AM    0  7 PM    0 (4)= INJURY NOT
ROR/NC      0                                                  AUG.      1    N-S      1     8 AM    0  8 PM    0        VISIBLE
HED/SSI     0                                                  SEPT.     0                   9 AM    0  9 PM    0
OTHER       0                                                  OCT.      0                  10AM     0 10PM     0 (5)= NOT SPECIFIED
NO SPEC     1                                                  NOV.      0                  11AM     0 11PM     0
                                                               DEC.      0                  12NN     0 12MD     0
                                                               N-SPC     0                           N-SP       1
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                         COMMONWEALTH OF MASSACHUSETTS         TRAFFIC ACCIDENT REPORT                    PAGE    1
                         DEPARTMENT OF PUBLIC WORKS                  FOR PERIOD
                         TRAFFIC ENGINEERING SECTION           01/01/75 THRU 12/31/80                     REPORT DATE 06/26/86

  BOSTON                       N  N  K                    INTERSECTION AT C1-4172 AND C2-4179     MARGINAL @ ORLEANS
                               O  O  I
                   T        H  .  .  L
                   Y        O  V  I  L                          COLLISION MOTIONS                                                  ENVIRONMENTAL CONDITIONS
LOC CASE           P        U  E  N  E  COLL     COLL  ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ***************************
NO.  NO.           E DATE   P  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3     ACTION    ACTION   CONTROL  LIGHT   WEATH  SURF  ROADWAY
*** ******         * ****  ** ** ** ** ******* ****  ******* ******* *******  ********** ********* *******  ******* ***** **** *******

001 115498         1 08298 00  2  1  0 NO SPEC  OTHR  NO SPEC  NO SPEC           NO SPEC    NO SPEC   NO TCD   NO SPEC N-SPC  OTHR  NO SPEC
                                        (EB) C1-4172 MARGINAL ST       (EB) C2-4179 AT ORLEANS ST                     VEH DIR =

NUMBER OF ACCIDENTS      1
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(SEGAL DISARCINA ASSO.)

E. BOSTON

GLOSSARY FOR TRAFFIC ACCIDENT REPORT

SUMNER + CALLAHAN TUNNELS

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TYPE • TYPE OF ACCIDENT

F	• FATAL ACCIDENT
I	• INJURY ACCIDENT
P	• PROPERTY DAMAGE ONLY ACCIDENT

COLL WITH • COLLISION WITH

PEDEST	• PEDESTRIAN
MV/TRAF	• MOTOR VEHICLE IN TRAFFIC
MV/PRKD	• MOTOR VEHICLE PARKED
RR TR	• RAILROAD TRAIN
ROR/HFO	• RAN OFF ROAD / HIT FIXED OBJECT
BICYCLE	• BICYCLE
OVTRND	• OVERTURNED IN ROAD
RCR/NC	• RAN OFF ROADWAY / NON COLLISION
HFO/SSI	• HIT FIXED OBJECT ON SHOULDER, SIDEWALK OR ISLAND
OTHER	• OTHER THAN ABOVE
NO SPEC	• NOT SPECIFIED ON ACCIDENT REPORT

COLL TYPE • COLLISION TYPE

REAR	• REAR END
ANGL	• ANGLE
HEAD	• HEAD ON
OTHR	• OTHER THAN ABOVE

COLLISION MOTIONS FOR VEH1 VEH2 VEH3

RT TURN	• MAKING RIGHT TURN
LT TURN	• MAKING LEFT TURN
U TURN	• MAKING U TURN
STRAGHT	• GOING STRAIGHT AHEAD
PASS/RT	• PASSING ON RIGHT
PASS/LT	• PASSING ON LEFT
STOP SG	• STOP SIGN
SKIDDING	• SKIDDING
SLOWING	• SLOWING OR STOPPING
XO MEDN	• CROSSING MEDIAN STRIP
NC DRIV	• DRIVERLESS MOVING VEHICLE
BACKING	• BACKING
STRT/TR	• STARTING IN TRAFFIC
STRT/PK	• STARTING FROM PARKED POSITION
PARKED	• PARKED
STALLED	• STALLED OR DISABLED
STLD/FL	• STALLED OR DISABLED WITH FLASHER ON
PARKING	• IN PROCESS OF PARKING
ALL/DR	• ENTERING OR EXITING ALLEY OR DRIVEWAY
OTHER	• OTHER THAN ABOVE
NO SPE	• NOT SPECIFIED ON ACCIDENT REPORT

PEDESTRIAN ACTION

AT INTER	• AT INTERSECTION
W/300 FEET	• WITHIN 300 FEET OF INTERSECTION
M/300 FEET	• MORE THAN 300 FEET FROM INTERSECTION
WLK W/TRAF	• WALKING IN STREET WITH TRAFFIC
WLK A/TRAF	• WALKING IN STREET AGAINST TRAFFIC
STDN IN ST	• STANDING IN STREET
ON/OFF VEH	• GETTING ON/OFF VEHICLE
WRK ON VEH	• WORKING ON VEHICLE
WRKG IN ST	• WORKING IN STREET
PLYG IN ST	• PLAYING IN STREET
NOT IN ST	• NOT IN STREET
OTHER	• OTHER THAN ABOVE
NO SPEC	• NOT SPECIFIED ON ACCIDENT REPORT

VEHICLE ACTION

ENT MEDN	• ENTERED MEDIAN
XD MEDIAN	• CROSSED MEDIAN
HIT MEDN	• HIT MEDIAN BARRIER
HIT GRD	• HIT GUARD RAIL
HIT CURB	• HIT CURBING
HIT ABUT	• HIT ABUTMENT
HIT SIGN	• HIT SIGNPOST
HIT U/L	• HIT UTILITY OR LIGHT POLE
HIT TREE	• HIT TREE
EMBANKMENT	• EMBANKMENT
DITCH	• DITCH
ROCK LEDG	• ROCK LEDGE
STON WALL	• STONE WALL
OTHR POST	• OTHER POST
BR RAIL	• BRIDGE RAIL
NO SPEC	• NOT SPECIFIED ON ACCIDENT REPORT

TRAFFIC CONTROL

STOP	• STOP SIGN
YIELD	• YIELD SIGN
WARNING	• WARNING SIGN
SIGNAL	• SIGNAL LIGHT
OFF/FLG	• OFFICER OR FLAGMAN
RR GATE	• RAILROAD CROSSING GATE
RR AUTO	• RAILROAD AUTOMATIC SIGNAL
NOT WRK	• CONTROL DEVICE NOT WORKING
NOT TCD	• NO CONTROL PRESENT

LIGHT

DAYLGT	• DAYLIGHT
DWN/DSK	• DAWN OR DUSK
DRK-LGT	• DARKNESS - ROAD LIGHTED
NO-LGTS	• DARKNESS - ROAD UNLIGHTED
NO SPEC	• NOT SPECIFIED ON ACCIDENT REPORT

ROADWAY • ROAD CONDITION

NO DFCT	• NO DEFECTS
H-R-B	• HOLES, RUTS, BUMPS
DEBRIS	• FOREIGN MATTER ON SURFACE
BAD SHL	• DEFECTIVE SHOULDER
CONSTRC	• ROAD UNDER CONSTRUCTION
OTHER	• OTHER THAN ABOVE
NO SPEC	• NOT SPECIFIED ON ACCIDENT REPORT

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                      COMMONWEALTH OF MASSACHUSETTS          ACCIDENTS BETWEEN COORDINATES      1983        PAGE    1
                      DEPARTMENT OF PUBLIC WORKS
                      TRAFFIC ENGINEERING SECTION            REPORT DATE 06/24/86

    BOSTON                 N  N  K    BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD       SUMNER/CAL TUN,
    ROUTE 001A             O  O  I      724450      500650      725100      500900
              T         H  .  .  L
              Y         O  V  I  L                        COLLISION MOTIONS                                     ENVIRONMENTAL CONDITIONS
 LOC CASE     P         U  E  N  E  COLL     COLL   ************************ PEDESTRIAN  VEHICLE   TRAFFIC  *************************
 NO.  NO.     E DATE    R  H  J  D  WITH     TYPE    VEH 1   VEH 2   VEH 3     ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  ******* ******* ******* ********** ********* ******* ******* ***** **** *******

                                                    PA. CAR  PA. CAR
 001 01551A I 01303 16  2  1  0 MV/TRAF  REAR   STRT/TR  STRAGHT           NO SPEC    NO SPEC   NO TCD   DAYLGT  CLEAR  DRY   NO OFCT
          MM=       X=724500  Y=500800  RTE=001A  ROUTE 1             AT SUMNER TUNNEL                 VEH DIR = S S

                                                    PA. CAR  PA. CAR
 001 33546A I 03103 16  2  1  0 MV/TRAF  REAR   RT TURN  STRAGHT           NO SPEC    NO SPEC   NO TCD   DAYLGT  RAIN   WET   NO SPEC
          MM=       X=724500  Y=500800  RTE=001A  ROUTE 1             AT SUMNER TUNNEL                 VEH DIR = S S

                                                    PA. CAR  TRAILER
 001 33758A I 03143 12  2  2  0 MV/TRAF  OTHR   OTHER    SLOWING           NO SPEC    NO SPEC   SIGNAL   DAYLGT  CLEAR  DRY   NO OFCT
          MM=       X=724500  Y=500800  RTE=001A  ROUTE 1A            AT LOGAN AIRPORT                 VEH DIR = S S

                                                    PA. CAR  PA. CAR
 001 34049A P 03193 10  2  0  0 MV/TRAF  ANGL   STRAGHT  STRAGHT           NO SPEC    HIT GRD   NO TCD   DAYLGT  RAIN   WET   NO SPEC
          MM=       X=724500  Y=500800  RTE=001A  ROUTE 1             AT SUMNER TUNNEL                 VEH DIR = W W

                                                    NOTSPEC  PA. CAR
 001 33926A P 03183 24  2  0  0 MV/TRAF  REAR   PASS/LT  SLOWING           NO SPEC    NO SPEC   NO TCD   DRK-LGT RAIN   WET   NO OFCT
          MM=       X=724500  Y=500900  RTE=001A  ROUTE 93            AT SUMNER TUNNEL                 VEH DIR = N N

                                                    PA. CAR  PA. CAR
 001 475708 I 11113 01  2  1  0 MV/TRAF  REAR   OTHER    STRAGHT           NO SPEC    NO SPEC   NO TCD   DRK-LGT RAIN   WET   NO OFCT
          MM=       X=724500  Y=500900  RTE=001A  ROUTE 93            AT SUMNER TUNNEL                 VEH DIR = S S

                                                    TRAILER  PA. CAR
 001 633188 P 12023 09  2  0  0 MV/TRAF  ANGL   STRAGHT  PASS/RT           NO SPEC    NO SPEC   STOP     DAYLGT  N-SPC  OTHR  NO SPEC
          MM=       X=724500  Y=500900  RTE=001A  ROUTE 93            AT SUMNER TUNNEL                 VEH DIR = N N


                     ACCIDENTS IN BOSTON

                     YEAR 1983 FROM JAN. TO DEC.  ROUTE 001A     *****      ACCIDENT RATE =   0.45 MV
                     LENGTH =  0.13 - ADT =  41700 - FAS = PRIMARY    M-LANE DIV NC   - URBAN
                     WET/DRY RATIO =  02.00            NIGHT/DAY RATIO =  00.40

                       0 FATAL ACCIDENTS,    0 PEOPLE KILLED   0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                       4 INJURY ACCIDENTS,                     5 PEOPLE INJURED.  SEV (1)=   0 (2)=   1 (3)=   1 (4)=   3 (5)=   0

                       3 POD * ACCIDENTS.                                       * POD = PROPERTY DAMAGE ONLY
                     ----                         ----
                       7 TOTAL ACCIDENTS,    5 TOTAL INJURIES.

     COLL WITH        COLL TYPE     LIGHT COND      WEATH COND       MONTH        DAY OF WK        HOUR OF DAY            SEV DEFINED

 PEDEST       0    REAR     4    DAYLGT     5    CLEAR    2    JAN.     1    SUN    1    1 AM    1   1 PM    0 (1)= KILLED
 MV/TRAF      7    ANGL     2    DWN/DSK    0    FOGGY    0    FEB.     0    MON    1    2 AM    0   2 PM    0
 MV/PRKD      0    HEAD     0    DRK-LGT    2    CLDY     0    MARCH    4    TUE    0    3 AM    C   3 PM    0 (2)= MAJOR INJURY
 RR TR        0    OTHR     1    NO-LGIS    0    RAIN     4    APRIL    C    WED    0    4 AM    0   4 PM    2
 ROR/HFO      0                  NO SPEC    0    SNOW     C    MAY      0    THR    1    5 AM    0   5 PM    0 (3)= MINOR INJURY
 BICYCLE      0                                  SLEET    0    JUNE     0    FRI    3    6 AM    0   6 PM    0
 OVRTRNC      0     TYPE OF VEHICLE COUNTS       N-SPC    1    JULY     0    SAT    1    7 AM    C   7 PM    0 (4)= INJURY NOT
 ROR/NC       0                                                AUG.     0    N-S    0    8 AM    0   8 PM    0         VISIBLE
 HFO/SSI      0     PASSENGER CARS         11                  SEPT.    0                 9 AM    1   9 PM    0
 OTHER        0     TRUCKS                  0                  OCT.     C                 10AM    1   10PM    0 (5)= NOT SPECIFIED
 NO SPEC      0     TRAILERS                2                  NOV.     1
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                              SUMMARY OF ACCIDENTS TOTALS - ROUTE 001A - BOSTON
                                                  LENGTH =  0.13 - FAS = PRIMARY    M-LANE DIV NC  - URBAN
ACCIDENTS BETWEEN COORDINATES

BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD
  724450      500650      725100      500900

 JAN.-DEC. 1983 TOTAL ACCIDENTS    7          FATAL ACCIDENTS   0          INJURY ACCIDENTS    4     ACCIDENT RATE =   0.45 MV
                ADT =  41700             FATALITIES   0      INJURIES   0  INJURIES     5

 JAN.-DEC. 1980 TOTAL ACCIDENTS    8          FATAL ACCIDENTS   0          INJURY ACCIDENTS    1     ACCIDENT RATE =   0.54 MV
                ADT =  40200             FATALITIES   0      INJURIES   0  INJURIES     1

 JAN.-DEC. 1979 TOTAL ACCIDENTS    6          FATAL ACCIDENTS   0          INJURY ACCIDENTS    0     ACCIDENT RATE =   0.40 MV
                ADT =  40300             FATALITIES   0      INJURIES   0  INJURIES     0

 JAN.-DEC. 1978 TOTAL ACCIDENTS    5          FATAL ACCIDENTS   0          INJURY ACCIDENTS    2     ACCIDENT RATE =   0.35 MV
                ADT =  38300             FATALITIES   0      INJURIES   0  INJURIES     6

 JAN.-DEC. 1977 TOTAL ACCIDENTS    0          FATAL ACCIDENTS   0          INJURY ACCIDENTS    0     ACCIDENT RATE =   0.00 MV
                ADT =  37000             FATALITIES   0      INJURIES   0  INJURIES     0

 JAN.-DEC. 1976 TOTAL ACCIDENTS    4          FATAL ACCIDENTS   0          INJURY ACCIDENTS    1     ACCIDENT RATE =   0.29 MV
                ADT =  36500             FATALITIES   0      INJURIES   0  INJURIES     1

 JAN-.-DEC.1975 TOTAL ACCIDENTS    3          FATAL ACCIDENTS   0          INJURY ACCIDENTS    0     ACCIDENT RATE =   0.23 MV
                ADT =  35000             FATALITIES   0      INJURIES   0  INJURIES     0
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                                        COMMONWEALTH OF MASSACHUSETTS          ACCIDENTS BETWEEN COORDINATES        1980          PAGE    1
                                        DEPARTMENT OF PUBLIC WORKS
                                        TRAFFIC ENGINEERING SECTION            REPORT DATE 06/24/86

   BOSTON                    N  N  K     BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD          SUM/CAL TUN
   ROUTE 001A                O  O  I       724450      500650      725100      500900
                 T        H  .  .  L
                 Y        O  W  I  L                   COLLISION MOTIONS                                                    ENVIRONMENTAL CONDITIONS
 LOC CASE        P        U  E  N  E  COLL     COLL   ************************  PEDESTRIAN  VEHICLE   TRAFFIC  ***************************
 NO.  NO.        E DATE   R  H  J  D  WITH     TYPE    VEH 1   VEH 2   VEH 3     ACTION      ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** ******* ****  ******* ******* ******* ********** ********* ******* ******* ***** **** *******

                                                   NOTSPEC  PA. CAR
 001 362582 P 05090 08  2  0  0 NO SPEC  ANGL      STRAGHT  PASS/RT           NO SPEC    NO SPEC    NO TCO   DAYLGT   CLEAR  DRY   NO DFCT
        MM=        X=724500  Y=500700  RTE=001A   PORTER ST           AT SUMNER TUNNEL                      VEH DIR = N N

                                                   PA. CAR  PA. CAR
 001 296955 P 03150 17  2  0  0 MV/TRAF  REAR      STRAGHT  STRAGHT           NO SPEC    NO SPEC    NO TCD   DRK-LGT  CLEAR  DRY   NO SPEC
        MM=        X=724500  Y=500800  RTE=001A   TUNNEL              AT LOGAN AIRPORT                      VEH DIR = W W

                                                   PA. CAR  TRUCK
 001 333893 P 03190 07  2  0  0 MV/TRAF  REAR      STRAGHT  STRAGHT           NO SPEC    NO SPEC    NO TCD   NO SPEC  CLEAR  DRY . NO DFCT
        MM=        X=724500  Y=500800  RTE=001A   ROUTE 1             AT CALLAHAN TUNNEL                    VEH DIR = N N

                                                   PA. CAR  NOTSPEC
 001 361491 P 05160 20  2  0  0 MV/TRAF  REAR      STRAGHT  STRAGHT           NO SPEC    OTHR POST YIELD     DRK-LGT  CLEAR  DRY   NO DFCT
        MM=        X=724500  Y=500800  RTE=001A   ROUTE 1A            AT LOGAN AIRPORT                      VEH DIR = N N

                                                   PA. CAR  PA. CAR
 001 356382 P 05290 16  2  0  0 MV/TRAF  REAR      STRAGHT  STRAGHT           NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
        MM=        X=724500  Y=500800  RTE=001A   ROUTE C1            0900 FEET E OF AIRPORT RD             VEH DIR = W W

                                                   PA. CAR  PA. CAR
 001 083412 P 10140 08  2  0  0 OTHER    ANGL      STRAGHT  ALLY/DR           NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
        MM=        X=724500  Y=500800  RTE=001A   ROUTE 1A            AT LOGAN AIRPORT                      VEH DIR = E N

                                                   NOTSPEC  NOTSPEC
 001 406179 P 07300 15  2  0  0 MV/TRAF  REAR      STRT/TR  STRT/TR           NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
        MM=        X=724500  Y=500900  RTE=001A   ROUTE 93            AT SUMNER TUNNEL RMP                  VEH DIR = N N

                                                   PA. CAR  PA. CAR  NOTSPEC
 001 086755 I 10150 18  3  1  0 MV/TRAF  REAR      SLOWING  STRAGHT  SLOWING  NO SPEC    NO SPEC    NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
        MM=        X=724550  Y=500800  RTE=001A   MCLELLAN HWY        AT SUMNER TUNNEL                      VEH DIR =


                  ACCIDENTS IN BOSTON

                  YEAR 1980 FROM JAN. TO DEC.  ROUTE 001A      *****       ACCIDENT RATE =   0.54 MV
                  LENGTH =  0.13 - ADT =  40200 - FAS = PRIMARY    M-LANE DIV NC  - URBAN
                  WET/DRY RATIO =  00.00                NIGHT/DAY RATIO =  00.40

                    0 FATAL ACCIDENTS,   0 PEOPLE KILLED   0 PEOPLE INJURED.  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  0 (5)=  0

                    1 INJURY ACCIDENTS,                    1 PEOPLE INJURED.  SEV (1)=  0 (2)=  0 (3)=  0 (4)=  1 (5)=  0

                    7 POD * ACCIDENTS.                                      * POD = PROPERTY DAMAGE ONLY
                 ----
                    8 TOTAL ACCIDENTS,   1 TOTAL INJURIES.
                                                      ----
     COLL WITH        COLL TYPE     LIGHT COND      WEATH COND       MONTH        DAY OF WK        HOUR OF DAY          SEV DEFINED

  PEDEST      0     REAR      6   DAYLGT     5   CLEAR    8   JAN.     0   SUN     0    1 AM    0  1 PM    0 (1)= KILLED
  MV/TRAF     6     ANGL      2   DWN/DSK    0   FOGGY    0   FEB.     0   MON     0    2 AM    0  2 PM    0
  MV/PRKD     0     HEAD      0   DRK-LGT    2   CLDY     0   MARCH    2   TUE     1    3 AM    0  3 PM    1 (2)= MAJOR INJURY
  RR TR       0     OTHR      0   NO-LGTS    0   RAIN     0   APRIL    0   WED     3    4 AM    0  4 PM    1
  ROR/HFO     0                   NO SPEC    1   SNOW     0   MAY      3   THR     1    5 AM    0  5 PM    1 (3)= MINOR INJURY
  BICYCLE     0                                  SLEET    0   JUNE     0   FRI     2    6 AM    0  6 PM    1
  OVRTRND     0                                  N-SPC    0   JULY     1   SAT     1    7 AM    1  7 PM    0 (4)= INJURY NOT
  ROR/NC      0                                               AUG.     0   N-S     0    8 AM    2  8 PM    1        VISIBLE
  FTG/SST     0                                               SEPT.
              1
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SUM/CAL TUN

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                               COMMONWEALTH OF MASSACHUSETTS        ACCIDENTS BETWEEN COORDINATES       1979          PAGE    1
                               DEPARTMENT OF PUBLIC WORKS
                               TRAFFIC ENGINEERING SECTION          REPORT DATE 06/24/86

 BOSTON                 N  N  K    BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD
 ROUTE 001A             U  D  I      724450      500650      725100      500900
           T         H  .  .  L
           Y         U  V  I  L                 COLLISION MOTIONS                                      ENVIRONMENTAL CONDITIONS
LOC CASE   P         U  E  N  E  COLL     COLL  ************************  PEDESTRIAN  VEHICLE  TRAFFIC  *****************************
NO. NO.    E DATE    R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION     ACTION  CONTROL   LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** *******  ****  *******  *******  *******  **********  ********* *******  *******  *****  ****  *******

001 381523 P 05069 00  2  0  0 MV/TRAF  REAR  RT TURN  STRAIGHT            NO SPEC    NO SPEC  NO TCD   DAYLGT   CLEAR  DRY   NO DFCT
       MM=       X=724500  Y=500800  RTE=001A  MCCLELLAN HWY     AT CALLAHAN TUNNEL                    VEH DIR =

001 014177 P 09279 22  2  0  0 NO SPEC  REAR  STRAGHT  OTHER               NO SPEC    NO SPEC  NO TCD   DRK-LGT  CLEAR  DRY   NO DFCT
       MM=       X=724500  Y=500800  RTE=001A  MCCLELLAN HWY     AT CALLAHAN TUNNEL                    VEH DIR = W W

001 324764 P 01019 16  2  0  0 MV/TRAF  REAR  STRAGHT  STRAGHT             NO SPEC    NO SPEC  NO TCD   DWN/DSK  RAIN   WET   NO SPEC
       MM=       X=724500  Y=500900  RTE=001A  MCCLELLAN HWY     AT SUMNER TUNNEL                      VEH DIR = W W

001 L09308 P 11269 18  2  0  0 MV/TRAF  REAR  STRAGHT  STRAGHT             NO SPEC    NO SPEC  NO TCD   DWN/DSK  FOGGY  WET   NO DFCT
       MM=       X=724600  Y=500600  RTE=001A  LOGAN AIRPORT     AT NR CALLAHAN TNNL                   VEH DIR = N N

001 342282 P 03309 15  2  0  0 MV/TRAF  OTHR  RT TURN  NO SPEC             NO SPEC    NO SPEC  NO TCD   DAYLGT   CLDY   WET   NO SPEC
       MM=       X=724600  Y=500700  RTE=001A  LEE BURBANK HWY   AT ROUTE C1A                          VEH DIR =

001 339544 P 03099 21  1  0  0 HFO/SSI  OTHR  STRAGHT                      NOT IN ST  STON WALL NO TCD  DRK-LGT  RAIN   WET   NO DFCT
       MM=       X=724800  Y=500800  RTE=001A  ROUTE 1           AT TUNNEL                             VEH DIR = S


                    ACCIDENTS IN BOSTON

                    YEAR 1979 FROM JAN. TO DEC.  ROUTE 001A     *****      ACCIDENT RATE =   0.40 MV
                    LENGTH =  0.13 - ADT =  40300 - FAS = PRIMARY    M-LANE DIV NC  - URBAN
                    WET/DRY RATIO =  02.00           NIGHT/DAY RATIO =  01.00

                      0 FATAL ACCIDENTS,    0 PEOPLE KILLED    0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                      0 INJURY ACCIDENTS,                      0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                      6 PDD * ACCIDENTS.                                   * PDD = PROPERTY DAMAGE ONLY
                   ----                              ----
                      6 TOTAL ACCIDENTS,    0 TOTAL INJURIES.

   COLL WITH          COLL TYPE      LIGHT COND        WEATH COND        MONTH          DAY OF WK          HOUR OF DAY             SEV DEFINED

 PEDEST        0     REAR     4     DAYLGT     2     CLEAR     2     JAN.      1     SUN      1     1 AM      0  1 PM      0 (1)= KILLED
 MV/TRAF       4     ANGL     0     DWN/DSK    2     FOGGY     1     FEB.      0     MON      2     2 AM      0  2 PM      0
 MV/PRKD       0     HEAD     0     DRK-LGT    2     CLDY      1     MARCH     2     TUE      0     3 AM      0  3 PM      1 (2)= MAJOR INJURY
 RR TR         0     OTHR     2     NO-LGTS    0     RAIN      2     APRIL     0     WED      0     4 AM      0  4 PM      1
 ROR/HFD       0                    NO SPEC    0     SNOW      0     MAY       1     THR      1     5 AM      0  5 PM      0 (3)= MINOR INJURY
 BICYCLE       0                                     SLEET     0     JUNE      0     FRI      2     6 AM      0  6 PM      1
 OVRTRND       0                                     N-SPC     0     JULY      0     SAT      0     7 AM      0  7 PM      0 (4)= INJURY NOT
 ROR/NC        0                                                     AUG.      0     N-S      0     8 AM      0  8 PM      0        VISIBLE
 HFO/SSI       1                                                     SEPT.     1                   9 AM      0  9 PM      1
 OTHER         0                                                     OCT.      0                   10AM      0  10PM      1 (5)= NOT SPECIFIED
 NO SPEC       1                                                     NOV.      1                   11AM      0  11PM      0
                                                                     DEC.      0                   12NN      0  12MD      0
                                                                     N-SPC     0                                 N-SP      1
```

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                                    COMMONWEALTH OF MASSACHUSETTS        ACCIDENTS BETWEEN COORDINATES       1978          PAGE    1
                                    DEPARTMENT OF PUBLIC WORKS
                                    TRAFFIC ENGINEERING SECTION          REPORT DATE 06/24/86

   BOSTON                 N  N  K     BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD          SUM/CAL TUN
   ROUTE 001A             U  O  I       724450      500650      725100      500900
            T          H  .  .  L
            Y          O  V  I  L           COLLISION MOTIONS                                      ENVIRONMENTAL CONDITIONS
 LOC CASE   P          U  E  N  E  COLL     COLL  ************************* PEDESTRIAN  VEHICLE   TRAFFIC  ****************************
 NO. NO.    E DATE     R  H  J  D  WITH     TYPE   VEH 1    VEH 2    VEH 3    ACTION      ACTION  CONTROL   LIGHT    WEATH  SURF  ROADWAY
 *** ****** * ***** ** ** ** ** *******     ****  *******  *******  *******  ********** ********* *******  *******  *****  ****  *******

 001 245789 P 09208 08  2  0  0 MV/TRAF     ANGL  OTHER    OTHER                NO SPEC   NO SPEC   STOP     DAYLGT   CLEAR  DRY   NO OFCT
          MM=      X=724500  Y=500700  RTE=001A  PORTER ST           AT SUMNER TUNNEL                       VEH DIR = S S

 001 231675 I 12268 15  2  3  0 MV/TRAF     REAR  SLOWING  STRAGHT              NO SPEC   NO SPEC   NO TCO   DAYLGT   CLEAR  DRY   NO OFCT
          MM=      X=724500  Y=500800  RTE=001A  ROUTE 1             AT SUMNER TUNNEL                       VEH DIR = S S

 001 004879 I 05248 21  3  3  0 MV/TRAF     REAR  SLOWING  SLOWING  NO SPEC     NO SPEC   NO SPEC   NO TCO   DRK-LGT  RAIN   WET   NO OFCT
          MM=      X=724500  Y=500900  RTE=001A  MCCLELLAN HWY       AT TUNNEL                              VEH DIR = S S S

 001 092277 P 06028 08  2  0  0 MV/TRAF     REAR  STRAGHT  STRAGHT              NO SPEC   NO SPEC   NO TCO   DAYLGT   CLDY   DRY   NO OFCT
          MM=      X=724500  Y=500900  RTE=001A  MCCLELLAN HWY       AT NR SUMNER TUNNEL                    VEH DIR = W W

 001 226125 P 07068 09  2  0  0 MV/TRAF     REAR  OTHER    OTHER                NO SPEC   NO SPEC   NO TCO   DAYLGT   CLEAR  DRY   NO OFCT
          MM=      X=724500  Y=500900  RTE=001A  MCCLELLAN HWY       AT SUMNER TUNNEL                       VEH DIR = W W


                       ACCIDENTS IN BOSTON

                       YEAR 1978 FROM JAN. TO DEC.  ROUTE 001A      *****      ACCIDENT RATE =   0.35 MV
                       LENGTH =  0.13 - ADT =  38300 - FAS = PRIMARY     M-LANE DIV NC   - URBAN
                       WET/DRY RATIO =  00.25            NIGHT/DAY RATIO =  00.25

                         0 FATAL ACCICENTS,  0 PEOPLE KILLED   0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                         2 INJURY ACCIDENTS,                    6 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   2 (4)=   2 (5)=   2

                         3 POD * ACCICENTS.                                     * POD = PROPERTY DAMAGE ONLY
                      ----                        ----
                         5 TOTAL ACCICENTS,   6 TOTAL INJURIES.

    COLL WITH          COLL TYPE      LIGHT COND        WEATH COND          MONTH          DAY OF WK           HOUR OF DAY                SEV DEFINED

 PEDEST        0     REAR      4    DAYLGT        4    CLEAR      3    JAN.       0    SUN       0    1 AM      0   1 PM      0 (1)= KILLED
 MV/TRAF       5     ANGL      1    DWN/DSK       0    FOGGY      0    FEB.       0    MON       0    2 AM      0   2 PM      0
 MV/PRKD       0     HEAD      0    DRK-LGT       1    CLDY       1    MARCH      0    TUE       1    3 AM      0   3 PM      1 (2)= MAJOR INJURY
 RR TP         0     OTHR      0    NO-LGTS       0    RAIN       1    APRIL      0    WED       2    4 AM      0   4 PM      0
 ROR/HFO       0                    NO SPEC       0    SNOW       0    MAY        1    THR       1    5 AM      0   5 PM      0 (3)= MINOR INJURY
 BICYCLE       C                                       SLEET      0    JUNE       1    FRI       1    6 AM      C   6 PM      0
 OVRTRNO       0                                       N-SPC      0    JULY       1    SAT       0    7 AM      0   7 PM      0 (4)= INJURY NOT
 ROR/NC        0                                                       AUG.       0    N-S       0    6 AM      2   6 PM      0         VISIBLE
 HFO/SSI       0                                                       SEPT.      1                   9 AM      I   9 PM      1
 OTHER         0                                                       OCT.       0                   10AM      C   10PM      0 (5)= NOT SPECIFIED



 NO SPEC       0                                                       NOV.       0                   11AM      C   11PM      0
                                                                       DEC.       1                   12NN      U   12MD      0
                                                                       N-SPC      U                                 N-SP      0
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                                   COMMONWEALTH OF MASSACHUSETTS         ACCIDENTS BETWEEN COORDINATES        1976          PAGE    1
                                   DEPARTMENT OF PUBLIC WORKS
                                   TRAFFIC ENGINEERING SECTION           REPORT DATE 06/24/86

  BOSTON                N  N  K    BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD
  ROUTE 001A            O  O  I      724450      500650      725100      500900
            T        H  .  .  L
            Y        O  V  I  L                 COLLISION MOTIONS                                              ENVIRONMENTAL CONDITIONS
LOC CASE    P        U  E  N  E  COLL     COLL  ************************ PEDESTRIAN  VEHICLE   TRAFFIC   *****************************
NO.  NO.    E DATE   R  H  J  D  WITH     TYPE   VEH 1    VEH 2   VEH 3    ACTION     ACTION   CONTROL   LIGHT   WEATH  SURF  ROADWAY
*** ****** * ***** ** ** ** ** *******  ****  *******  ******* ******* ********** ********* *******   ******* *****  ****  *******

001 00877J I 01206 16  1  1  0 PEDEST   OTHR  STRAGHT                  OTHER       NO SPEC  NO TCD    DAYLGT  SNOW   WET   NO DFCT
       MM=      X=724500  Y=500800  RTE=001A  MCCLELLAN HWY     AT CALLAHAN TUNNEL                      VEH DIR = N

001 83499J P 06046 15  2  0  0 MV/TRAF  ANGL  SLOWING  RT TURN           NO SPEC   NO SPEC  NO TCD    DAYLGT  CLEAR  DRY   NO DFCT
       MM=      X=724600  Y=500700  RTE=001A  ROUTE 1           AT SUMNER TUNNEL                        VEH DIR = S S

001 62304K P 11106 18  2  0  0 MV/TRAF  REAR  STRT/PK  SKIDING           NO SPEC   NO SPEC  NO TCD    DRK-LGT CLEAR  ICY   NO DFCT
       MM=      X=724700  Y=500800  RTE=001A  EXPRESSWAY        AT HARBOR TUNNEL                        VEH DIR = S S

001 30384K P 09206 08  2  0  0 MV/TRAF  ANGL  OTHER    RT TURN           NO SPEC   NO SPEC  NO TCD    DAYLGT  CLEAR  DRY   NO DFCT
       MM=      X=724800  Y=509000  RTE=001A  ROUTE 1           AT GEORGE VISCONT RD                    VEH DIR = N N


                     ACCIDENTS IN BOSTON

                     YEAR 1976 FROM JAN. TO DEC.  ROUTE 001A     *****     ACCIDENT RATE =   0.29 MV
                     LENGTH =  0.13 - ADT =  36500 - FAS = PRIMARY    M-LANE DIV NC  - URBAN
                     WET/DRY RATIO =  00.50          NIGHT/DAY RATIO =  00.33

                       0 FATAL ACCIDENTS,   0 PEOPLE KILLED   0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                       1 INJURY ACCIDENTS,                    1 PEOPLE INJURED.  SEV (1)=   0 (2)=   1 (3)=   0 (4)=   0 (5)=   0

                       3 POD * ACCIDENTS.                                    * POD = PROPERTY DAMAGE ONLY
                     ----                                   ----
                       4 TOTAL ACCIDENTS,   1 TOTAL INJURIES.

   COLL WITH        COLL TYPE      LIGHT COND       WEATH COND        MONTH        DAY OF WK        HOUR OF DAY              SEV DEFINED

 PEDEST      1     REAR     1     DAYLGT     3     CLEAR     3      JAN.     1     SUN     0     1 AM    0  1 PM    0 (1)= KILLED
 MV/TRAF     3     ANGL     2     DAWN/DSK   0     FOGGY     0      FEB.     0     MON     1     2 AM    0  2 PM    0
 MV/PPKD     0     HEAD     0     DRK-LGT    1     CLDY      0      MARCH    0     TUE     1     3 AM    0  3 PM    1 (2)= MAJOR INJURY
 RR TR       0     OTHR     1     NO-LGTS    0     RAIN      0      APRIL    0     WED     1     4 AM    0  4 PM    1
 ROR/HFO     0                    NO SPEC    0     SNOW      1      MAY      0     THR     0     5 AM    0  5 PM    0 (3)= MINOR INJURY
 BICYCLE     0                                     SLEET     0      JUNE     1     FRI     1     6 AM    0  6 PM    1
 OVRTRND     0                                     N-SPC     0      JULY     0     SAT     0     7 AM    0  7 PM    0 (4)= INJURY NOT
 ROR/NC      0                                                      AUG.     0     N-S     0     8 AM    1  8 PM    0        VISIBLE
 HFO/SSI     0                                                      SEPT.    1                   9 AM    0  9 PM    0
 OTHER       0                                                      OCT.     0                   10AM    0  10PM    0 (5)= NOT SPECIFIED
 NO SPEC     0                                                      NOV.     1                   11AM    0  11PM    0
                                                                    DEC.     0                   12NN    0  12MD    0
                                                                    N-SPC    0                              N-SP    0
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                          COMMONWEALTH OF MASSACHUSETTS          ACCIDENTS BETWEEN COORDINATES        1975          PAGE    1
                          DEPARTMENT OF PUBLIC WORKS
                          TRAFFIC ENGINEERING SECTION            REPORT DATE 06/24/86

  BOSTON                   N  N  K    BEG XCOORD  BEG YCOORD  END XCOORD  END YCOORD
  ROUTE 001A               O  O  I      724450      500650      725100      500900
           T           H   .  .  L
           Y           U   V  I  L                 COLLISION MOTIONS                                            ENVIRONMENTAL CONDITIONS
LOC CASE   P           U   E  N  E  COLL     COLL  ************************* PEDESTRIAN  VEHICLE   TRAFFIC  *****************************
NO.  NO.   E DATE      R   H  J  D  WITH     TYPE   VEH 1     VEH 2    VEH 3    ACTION     ACTION   CONTROL   LIGHT    WEATH  SURF  ROADWAY
*** ****** * *****    **  ** ** ** *******   ****  *******   *******  *******  ********** ********* *******   *******  *****  ****  *******

001 542010 P 10145 15  2  0  0 MV/TRAF  ANGL  LT TURN  PASS/LT            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   H-R-8
       MM=     X=724500  Y=500800  RTE=001A  ROUTE 1           AT CALLAHAN TUNNEL                  VEH DIR = W N

001 051260 P 07315 17  3  0  0 MV/TRAF  REAR  STRAGHT  STRAGHT  NO SPEC  NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
       MM=     X=724700  Y=501000  RTE=001A  ROUTE 1           AT TUNNEL ENTRANCE                  VEH DIR = N N N

001 542250 P 10145 07  2  0  0 MV/TRAF  ANGL  STRAGHT  RT TURN            NO SPEC    NO SPEC   NO TCD    DAYLGT   CLEAR  DRY   NO DFCT
       MM=     X=724700  Y=501000  RTE=001A  ROUTE 1           0400 FEET  OF SUMNER TUNNEL         VEH DIR = S S


                    ACCIDENTS IN BOSTON

                    YEAR 1975 FROM JAN. TO DEC.  ROUTE 001A     *****     ACCIDENT RATE =   0.23 MV
                    LENGTH =  0.13 - ADT =  35000 - FAS = PRIMARY    M-LANE DIV NC  - URBAN
                    WET/DRY RATIO =  00.00          NIGHT/DAY RATIO =  00.00

                     0 FATAL ACCIDENTS,   0 PEOPLE KILLED   0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                     0 INJURY ACCIDENTS,                    0 PEOPLE INJURED.  SEV (1)=   0 (2)=   0 (3)=   0 (4)=   0 (5)=   0

                     3 PDD * ACCIDENTS.                                   * PDD - PROPERTY DAMAGE ONLY
                  ----                                  ----
                     3 TOTAL ACCIDENTS,   0 TOTAL INJURIES.

   COLL WITH       COLL TYPE     LIGHT COND       WEATH COND        MONTH         DAY OF WK        HOUR OF DAY             SEV DEFINED

PEDEST      0     REAR     1     DAYLGT     3     CLEAR    3     JAN.      0     SUN     0     1 AM     0   1 PM     0 (1)= KILLED
MV/TRAF     3     ANGL     2     DWN/DSK    0     FOGGY    0     FEB.      0     MON     0     2 AM     0   2 PM     0
MV/PRKD     0     HEAD     0     DRK-LGT    0     CLDY     0     MARCH     0     TUE     2     3 AM     0   3 PM     1 (2)= MAJOR INJURY
RR TR       0     OTHR     0     NO-LGTS    0     RAIN     0     APRIL     0     WED     0     4 AM     0   4 PM     0
ROR/HFO     0                    NO SPEC    0     SNOW     0     MAY       0     THR     1     5 AM     0   5 PM     1 (3)= MINOR INJURY
BICYCLE     0                                     SLEET    0     JUNE      0     FRI     0     6 AM     0   6 PM     0
OVRTRND     0                                     N-SPC    0     JULY      1     SAT     0     7 AM     1   7 PM     0 (4)= INJURY NOT
ROR/NC      0                                                    AUG.      0     N-S     0     8 AM     0   8 PM     0          VISIBLE
HFO/SSI     0                                                    SEPT.     0                   9 AM     0   9 PM     0
OTHER       0                                                    OCT.      2                   10AM     0   10PM     0 (5)= NOT SPECIFIED
NO SPEC     0                                                    NOV.      0                   11AM     0   11PM     0
                                                                 DEC.      0                   12NN     0   12MD     0
                                                                 N-SPC     0                                N-SP     0
```

Appendix D—Water Quality

The following Appendix provides information collected during planning for the Clippership Wharf Project pertaining to sediment quality in the site area. This data has been collected in addition to information presented in the Draft EIR. It should be noted that much of this data was collected in association with plans to dredge in the marina basin. However, dredging in the marina basin is not longer proposed (see Chapter IVF - Water Quality of this Final EIR).

WATER QUALITY
TECHNICAL APPENDIX

Summary of Sediment Quality Characterization

Extensive effort has been applied to the characterization of sediment quality in the marine portion of the Clippership Wharf site. Redesign of the marina has since precluded the need for dredging. In the interest of making all relevant information readily accessible, however, sediment quality characterization has been summarized in a technical appendix to the FEIR.

The initial survey included vibracore sampling to refusal at three locations (D1, D2, D3; Figure 1) in the proposed dredge footprint. Bulk sediment analysis was performed on all apparent sediment strata (Table 1; Figure 2). Surface material at Station D1 exhibited elevated levels of lead, mercury, zinc, oil and grease and volatile solids relative to the DEQE sediment classification system. Surface sediments at D2 and D3 were somewhat elevated in lead content.

Surface sediments were also collected from stations located along transects emanating from D1 towards D2 (Figure 1) to attempt to delineate the horizontal extent of the contaminants. These results are also included on Table 1. The results did not indicate a clear cut boundary however, particularly for zinc and lead. Mercury, copper and oil and grease were also elevated in several samples, particularly those along the slope to the deeper portions of the basin.

The conditions at D1 led to the request for elutriate and bioassay/bioaccumulation testing from the reviewing agencies prior to consideration for disposal at the Foul Area.

Elutriate test results are presented in Table 2. Results indicated that levels of zinc, copper and lead could become elevated in the water column due to suspension of sediments during dredging or disposal operations.

The bioassay/bioaccumulation testing indicated that the polychaete *Nereis virens* experienced significant mortality when exposed to project area sediments compared to Foul Area sediments. Neither the

Figure 1. Location of Sediment Sampling Stations.

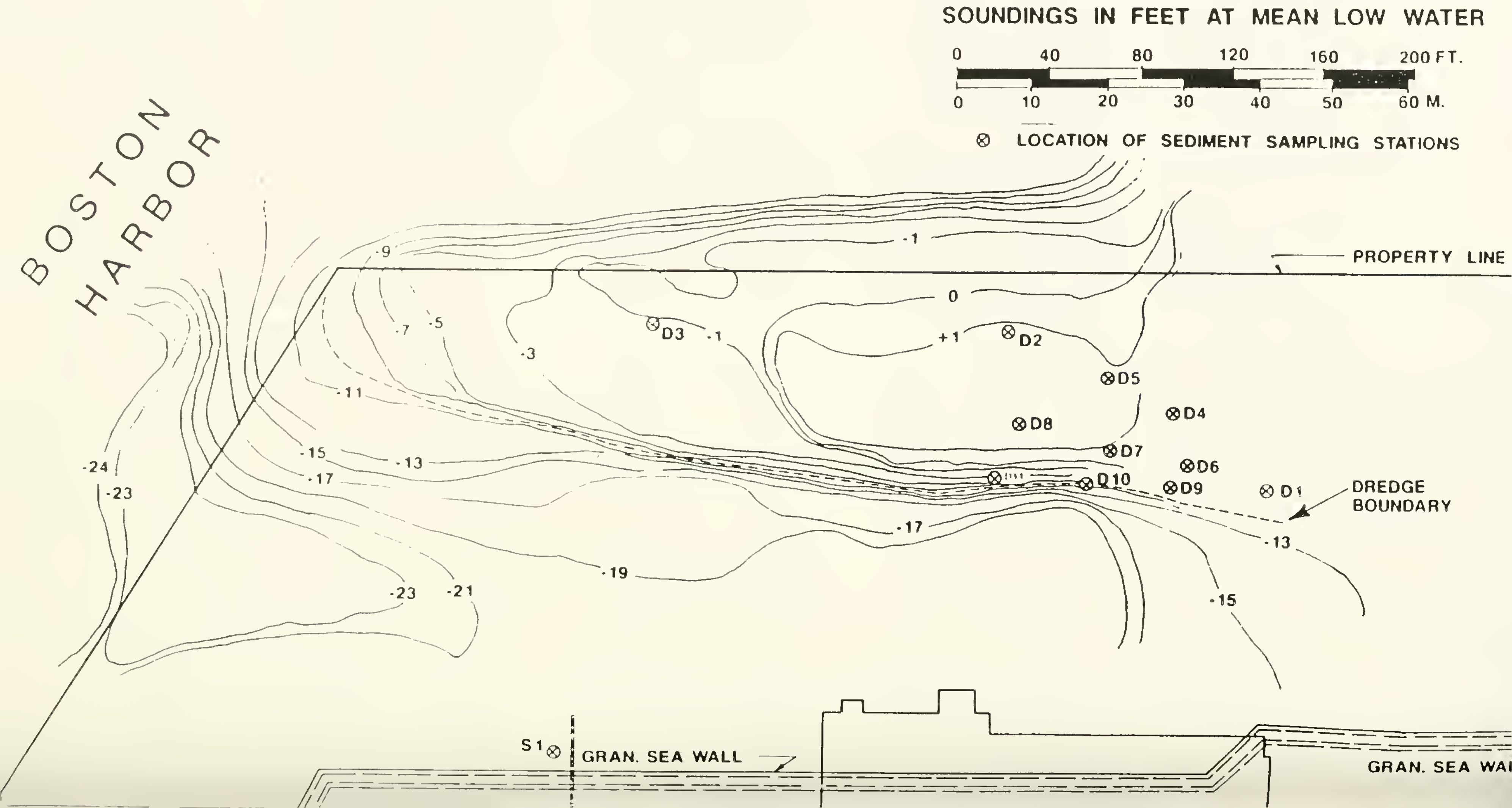


TABLE 1. SEDIMENT ANALYSIS: BULK CHEMICAL COMPOSITION AND CLASSIFICATION OF SEDIMENTS PROPOSED FOR DREDGING.

	Station[a] (Depth, feet)				
Parameter[b]	D1 (0-3.5)	D1 (3.5-7.5)	D2 (0-1.5)	D2 (1.5-4.5)	D2 (4.5-9.5)
Arsenic	<3	<5	<3	<1	<1
Cadmium	3.8	<0.3	1.3	<0.2	<0.2
Chromium	65	19	16	14	12
Copper	170	19	94	18	14
Lead	570**	<3	160*	9	<2
Mercury	1.6**	<1	0.29	<0.1	<0.1
Nickel	33	18	9.0	11	11
Vanadium	<5	36	<5	30	26
Zinc	630**	48	180	37	51
Total PCB	0.39	<0.5	<.02	<0.05	<0.05
% Volatile Solids	7.1*	0.4	4.7	3.0	0.4
% Oil and Grease	7.2**	0.11	0.27	0.087	0.15
% Silt-Clay	17.2	45.7	36.5	38.3	37.0
CLASSIFICATION	3C	1A	2A	1A	1A

	D3 (0-3.5)	D3 (3.5-5.5)	D4 (0-0.5)	D5 (0-0.5)	D6 (0-0.5)
Arsenic	<3	<1	<2	<2	<2
Cadmium	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	9.7	14	110*	46	54
Copper	89	3.3	310*	180	160
Lead	110*	<2	850**	230**	120*
Mercury	0.29	<0.1	<0.1	0.3	<0.1
Nickel	8.6	11	25	12	35
Vanadium	<5	26	20	4.2	9.0
Zinc	73	31	470**	340*	200*
Total PCB	<0.02	<0.05	<0.05	0.16	<0.05
% Volatile Solids	3.6	2.2	4.7	4.2	2.0
% Oil and Grease	0.17	0.032	0.14	0.45	0.17
% Silt-Clay	45.6	54.0	2.4	8.7	2.3
CLASSIFICATION	2A	1A	3A	3A	2A

TABLE 1. (Continued)

	D7 (0-0.5)	D8 (0-0.5)	D10 (0-0.5)	D11 (0.05)	S1 (0-4)	S2 (0-3.5)
Arsenic	<2	<2	<2	<2	<3	<3
Cadmium	<0.2	<0.2	<0.2	<0.2	1.8	0.8
Chromium	40	45	62	80	100*	71
Copper	260*	160	260*	210*	130	94
Lead	160*	130*	430**	220**	210*	130*
Mercury	<0.1	0.4	0.6*	0.9*	2.2**	0.74*
Nickel	21	14	19	21	25	12
Vanadium	18	16	23	31	<5	<5
Zinc	330*	200*	3500**	380*	310*	150
Total PCB	0.07	0.08	0.10	0.13	0.15	0.33
% Volatile Solids	2.4	3.0	5.6*	6.4*	4.3	11**
% Oil and Grease	0.13	0.28	0.74*	0.66*	3.5**	1.9**
% Silt-Clay	4.9	13.4	12.6	17.4	82.2*	17.1
CLASSIFICATION	2A	2A	3B	3B	3C	2C

[a] Stations with a prefix of D are in proposed dredge area; those with a prefix of S are along sea walls.

[b] All results are based on standard dry weight; parts per million.

[*] Category Two or Type B, MA Division of Water Pollution Control Guidelines.

[**] Category Three or Type C.

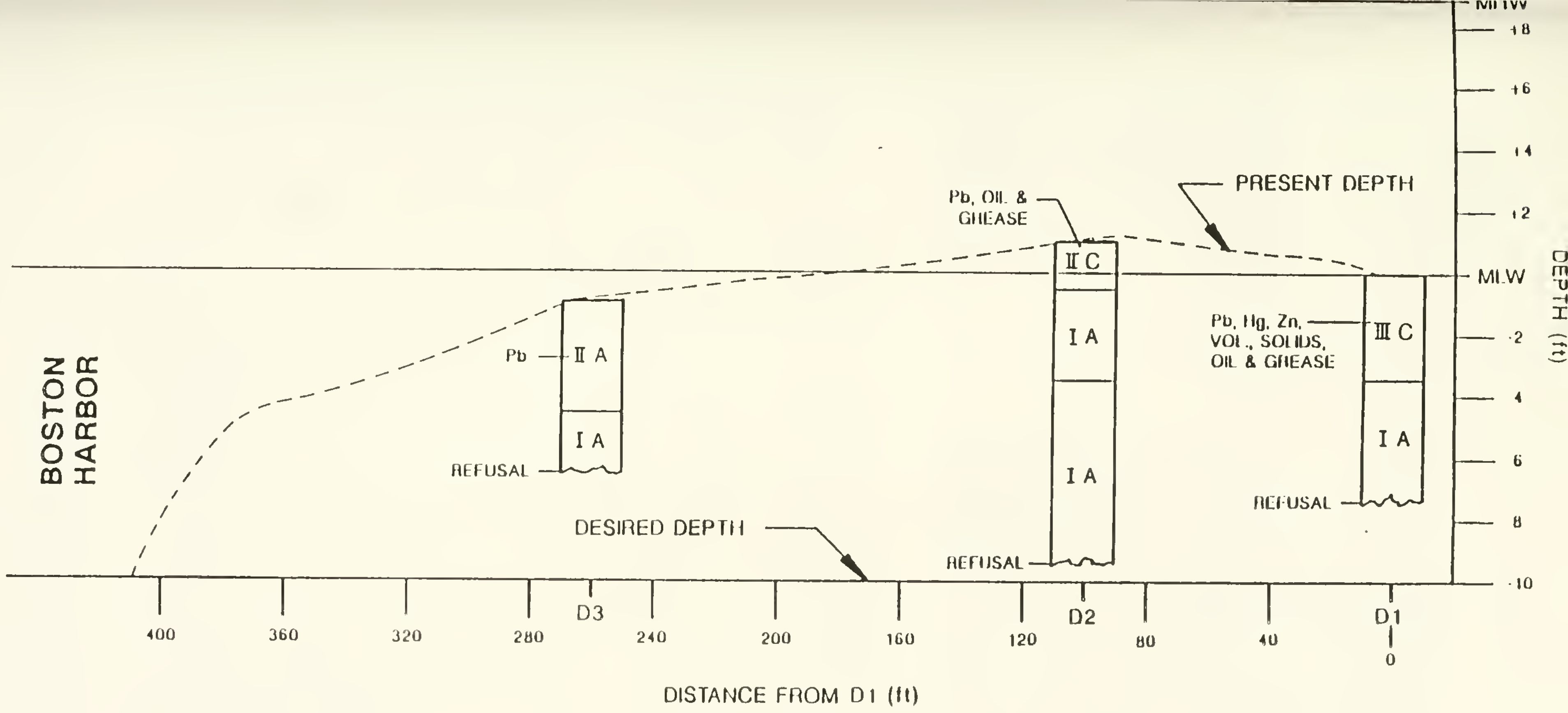


Figure 2. Classification of sediments (314CMR9.03) from Clippership Wharf vibracore samples.

TABLE 2. ELUTRIATE ANALYSIS OF MARINE SEDIMENTS.

Parameter	Receiving Water Without Sediment	Receiving Water With Sediment From Sample D1
Arsenic	< 50 μg/l	<100 μg/l
Cadmium	< 5 μg/l	< 5 μg/l
Chromium	< 20 μg/l	< 20 μg/l
Copper	< 10 μg/l	20 μg/l
Lead	130 μg/l	160 μg/l
Mercury	< 0.6 μg/l	< 0.6 μg/l
Zinc	85 μg/l	100 μg/l
PCB's	< 10 μg/l	< 10 μg/l
Oil and Grease	<1000 μg/l	<1000 μg/l
DDT	< 10 μg/l	<10 μg/l

Note:

Surface sediments were obtained by grab sampler.

grass shrimp (*Palaemonetes pugio*) nor the hard clam (*Mercenaria mercenaria*) experienced differences in mortality in the two sediments.

Bioaccumulation analysis revealed that uptake did occur in *Nereis* (all parameters except DDT), *Mercenaria* (PCBs only) and *Palaemonetes* (PCBs only). However, in only one sample (PCBs in one replicate of *Nereis*) was uptake above the required detection limit for the analysis. Results are presented in Table 3.

Initial review of the petroleum hydrocarbon results indicated a high variance among the body burden replicates exposed to reference sediments. This variance clouded the statistical comparison of reference and project site results for this parameter.

To clarify this analysis, chromatograms from this test were compared to chemical standards that were analyzed during the same time period as this particular test. Standards selected included EPA-designated priority pollutant PAHs (napthalene, acenapthylene, acenapthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, chrysese, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene and benzo(a)pyrene) and aliphatic hydrocarbons (C12, C14, C16, C18, C20 and C22). These data are included in Table 4. The bioassay/bioaccumulation report has been revised to incorporate this reanalysis. Detectable body burdens in either the clam or the shrimp occurred in a single reference sample. Levels in animals exposed to project site sediments were lower than these reference samples. Body burden of C22 was observed in all *Nereis* samples. Fluoranthene was detected in one sample each from the control and reference sediments but not from the project site sediments. One sample exposed to the project site sediments indicated presence of benzo(a)fluoranthene and benzo(a)-pyrene in *Nereis*. Statistical analysis on the revised total petroleum hydrocarbon levels indicated that uptake from the dredge site sediments was not significant compared to the reference sediments.

TABLE 3. BIOASSAY/BIOACCUMULATION TEST RESULTS - COMPARISON OF ORGANISMS EXPOSED TO DREDGE AREA SEDIMENTS AND FOUL AREA REFERENCE SEDIMENTS.

	Nereis virens	*Mercenaria mercenaria*	*Palaemonotes pugio*
Mortality	significant	not significant	not significant
(All species)		significant	
Uptake			
Mercury	not significant	no accumulation	no accumulation
Cadmium	not significant	no accumulation	no accumulation
PCBs	significant	insignificant	significant[a]
DDT	no accumulation	no accumulation	no accumulation
PHC	no accumulation	no accumulation	no accumulation

TABLE 4. Body burdens of Target PHCs in *Mercenaria mercenaria*, *Nereis virens* and *Palaemonetes pugio* exposed to proposed dredged material. Normandeau Associates, Inc. Dredged Sediment Evaluation, November 1986.

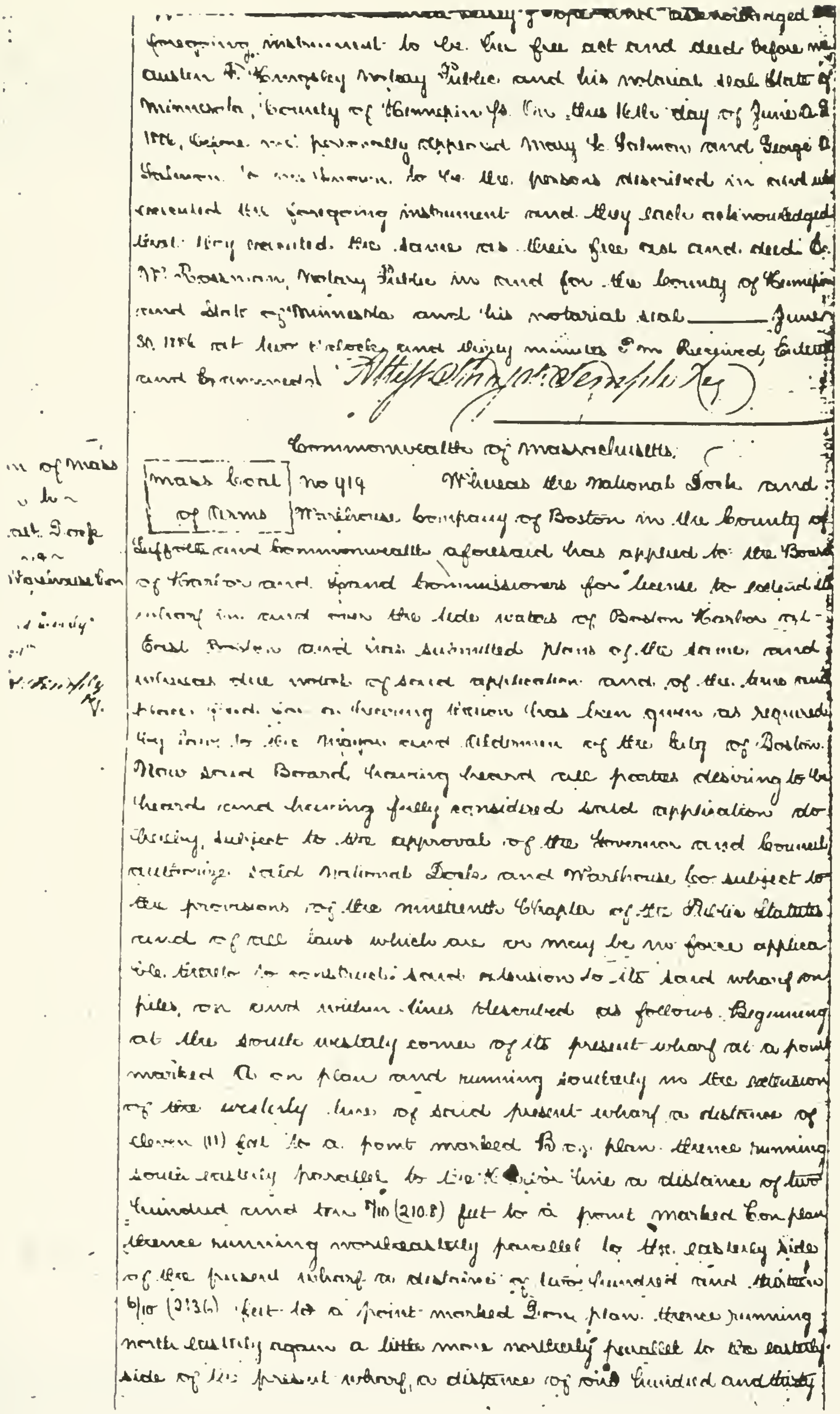
SPECIES	SITE	REP	TOTAL PHC	TARGET COMPOUNDS			
				PHC's	PNA's		
				C22	Benzo[b] fluro-anthene	Benzo[a] pyrene	Fluroanthene
Mercenaria mercenaria	Control	1	<0.1				
		2	<0.1				
		3	<0.1				
	Reference	1	<0.1				
		2	<0.1				
		3	<0.1				
		4	0.33		0.15	0.18	
		5	<0.1				
	Site	1	<0.1				
		2	<0.1				
		3	0.21		0.21		
		4	<0.1				
		5	<0.1				
Nereis virens	Control	1	6.3	0.54			5.8
		2	0.13	0.13			
		3	5.26	0.36			4.9
	Reference	1	0.20	0.20			
		2	0.23	0.23			
		3	0.15	0.15			
		4	0.23	0.23			
		5	5.79	0.49			5.3
	Site	1	0.35	0.35			
		2	0.34	0.34			
		3	2.96	0.10	0.56	2.3	
		4	LOST				
		5	0.31	0.31			
Paleomonetes pugio	Control	1	LOST				
		2	<0.1				
		3	<0.1				
	Reference	1	<0.1				
		2	<0.1				
		3	0.84		0.84		
		4	<0.1				
		5	<0.1				
	Site	1	<0.1				
		2	<0.1				
		3	<0.1				
		4	<0.1				
		5	<0.1				

Appendix E—Prior Tidelands Licenses

Included on the following pages are copies of the tidelands licenses pertaining to the project site and issued during the period 1886 to 1923. The licenses are as follows:

License #	Date	Suffolk Registry of Deeds Book/Page #
919	June 30, 1886	1730/278
1650	April 12, 1894	2199/195
2231A	April 12, 1899	2622/585
2831	April 21, 1904	2964/280
3048	April 11, 1906	3148/321
3089	July 20, 1906	3148/49
198	July 5, 1918	4123/523
244	March 12, 1919	4218/441
342	July 19, 1923	4491/210

License No. 919
June 30, 1886
Book 1730, Page 278



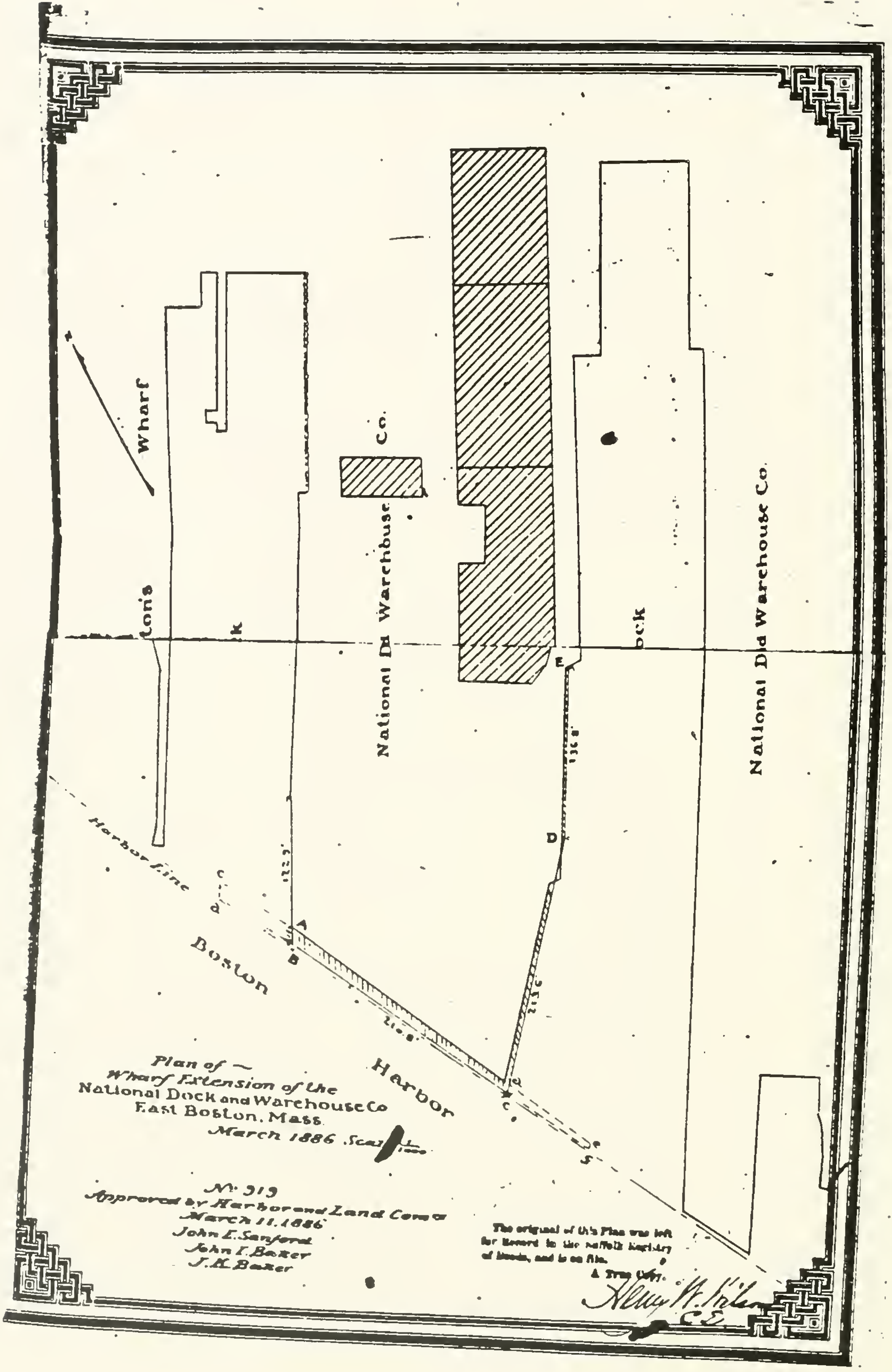
duly [illegible] and acknowledged the foregoing instrument to be her free act and deed before me Austin F. Kingsley Notary Public and his notarial seal State of Minnesota, County of Hennepin ss. On this 16th day of June A.D. 1886, before me personally appeared Mary E. Salmon and George D. Salmon to me known to be the persons described in and who executed the foregoing instrument and they each acknowledged that they executed the same as their free act and deed E. W. Bowman Notary Public in and for the County of Hennepin and State of Minnesota and his notarial seal ——— June 30, 1886 at two o'clock and thirty minutes P.m Received, Entered and Examined Attest [illegible] Reg.

Commonwealth of Massachusetts.

n of Mass
at. Dock
Warehouse Co

Mass. Coat of Arms

No 419 Whereas the National Dock and Warehouse Company of Boston in the County of Suffolk and Commonwealth aforesaid has applied to the Board of Harbor and Land Commissioners for license to extend its wharf in and over the tide waters of Boston Harbor at East Boston and has submitted plans of the same and whereas due notice of said application and of the time and place fixed for a hearing thereon has been given as required by law to the Mayor and Aldermen of the City of Boston. Now said Board having heard all parties desiring to be heard and having fully considered said application do hereby, subject to the approval of the Governor and Council authorize said National Dock and Warehouse Co. subject to the provisions of the nineteenth Chapter of the Public Statutes and of all laws which are or may be in force applicable thereto to construct said extension to its said wharf on piles, on and within lines described as follows. Beginning at the south westerly corner of its present wharf at a point marked A on plan and running southerly in the extension of the westerly line of said present wharf a distance of eleven (11) feet to a point marked B on plan thence running south easterly parallel to the Harbor line a distance of two hundred and ten 8/10 (210.8) feet to a point marked C on plan thence running northeasterly parallel to the easterly side of the present wharf a distance of two hundred and thirteen 6/10 (213.6) feet to a point marked D on plan thence running north easterly again a little more northerly parallel to the easterly side of the present wharf, a distance of one hundred and thirty


Plan of ~
Wharf Extension of the
National Dock and Warehouse Co
East Boston, Mass.
March 1886 Scale 1/1000
No. 319
Approved by Harbor and Land Comrs
March 11, 1886
John E. Sanford
John I. Baker
J. H. Baker
The original of this Plan was left for Record in the Suffolk Registry of Deeds, and is on file.
A True Copy.
C.E.
Boston
Harbor
Harbor Line
Wharf
National Dock Warehouse Co.
National Dock Warehouse Co.
A
B
C
D
E
S

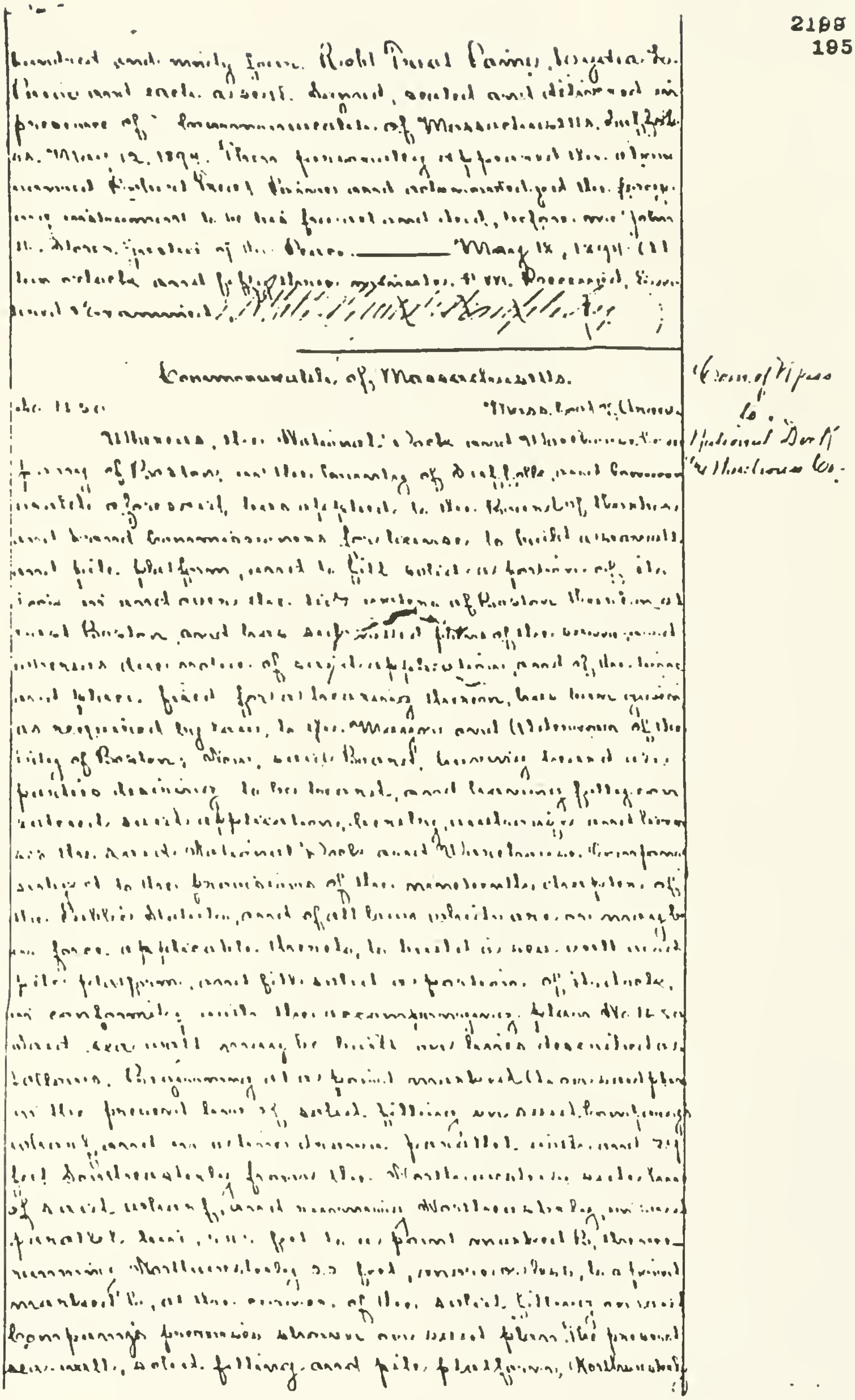
to (1368) feet to an angle in said easterly side of the pres-
t wharf at a point marked E on plan and said
censee shall have a right to use for the purposes of a
ck or dock appurtenant to said extension of its wharf
e areas in dotted red lines marked A B C D and E D E F on
lan. The plan for the construction of said extension to
aid wharf is on file in the office of said Board num-
ered 919 and a duplicate of said plan accompanies this li-
ense This license shall be void, unless the same, and the
accompanying plan are recorded within one year from the
date hereof, in the Registry of deeds for the County of Suf-
folk nothing in this license shall be so construed as to im-
pair the legal rights of any person The amount of tide-
water displaced by the structure hereby authorized shall be as-
certained by said Board of Harbor and Land Commissioners
and compensation therefor shall be made by said Nation-
al Dock and Warehouse Co by paying into the Treasury of
the Commonwealth thirty seven 1/2 (37 1/2) cents for each cubic
yard so displaced, being the amount hereby assessed by said
Board, the same to be reserved as a compensation fund
for the harbor of Boston This license is granted in consid-
eration of the payment into the Treasury of the Common-
wealth by said National Dock and Warehouse Company
for the rights and privileges hereby granted in land of
said Commonwealth of the sum of four hundred and
sixty eight dollars ($468 08) being the amount determined by
the Governor and Council to be just and equitable therefor.
In witness whereof, said Board of Harbor and Land
Commissioners have hereto set their hands this eleventh
day of March in the year eighteen hundred and eighty
six. John E Sanford, John G Baker, J H Baker, Harbor and
Land Commissioners and the Commonwealth Seal Common
wealth of Massachusetts Boston Mar 17 1886 approved by
the Governor and Council. Witness the Seal of the Com-
monwealth, Henry B Peirce, Secretary of the Commonwealth &
the Commonwealth Seal. ——— June 30 1886 at two o'clock
and thirty three minutes Pm. Received Entered and Examined

Noble
~to~
Glover

Know all Men by these Presents,

That I, William O Noble of Boston in the County of Suf-
folk and Commonwealth of Massachusetts in consideration of

License No. 1650
April 12, 1894
Book 2199, Page 195



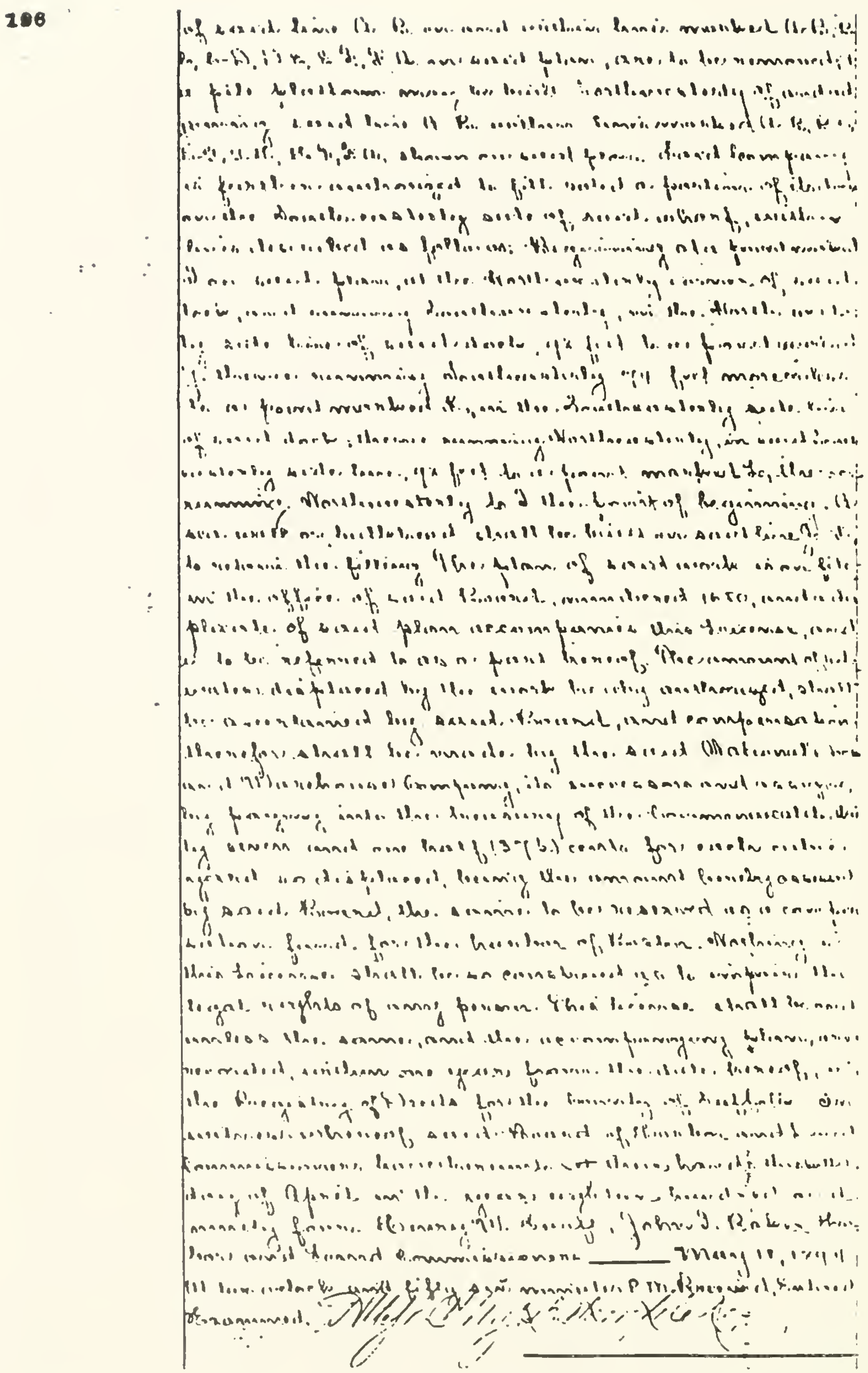
hundred and ninety four. Robt Treat Paine, Lydia Lo. Paine and each a seal. Signed, sealed and delivered in presence of Commonwealth of Massachusetts, Suffolk ss. May 12, 1894. Then personally appeared the above named Robert Treat Paine and acknowledged the foregoing instrument to be his free act and deed, before me John [illegible] Justice of the Peace. ——— May 18, 1894. 11 o'clock and fifty three minutes A.M. Received, Entered and Examined.

Commonwealth of Massachusetts.

No. 1150 Mass. [illegible]

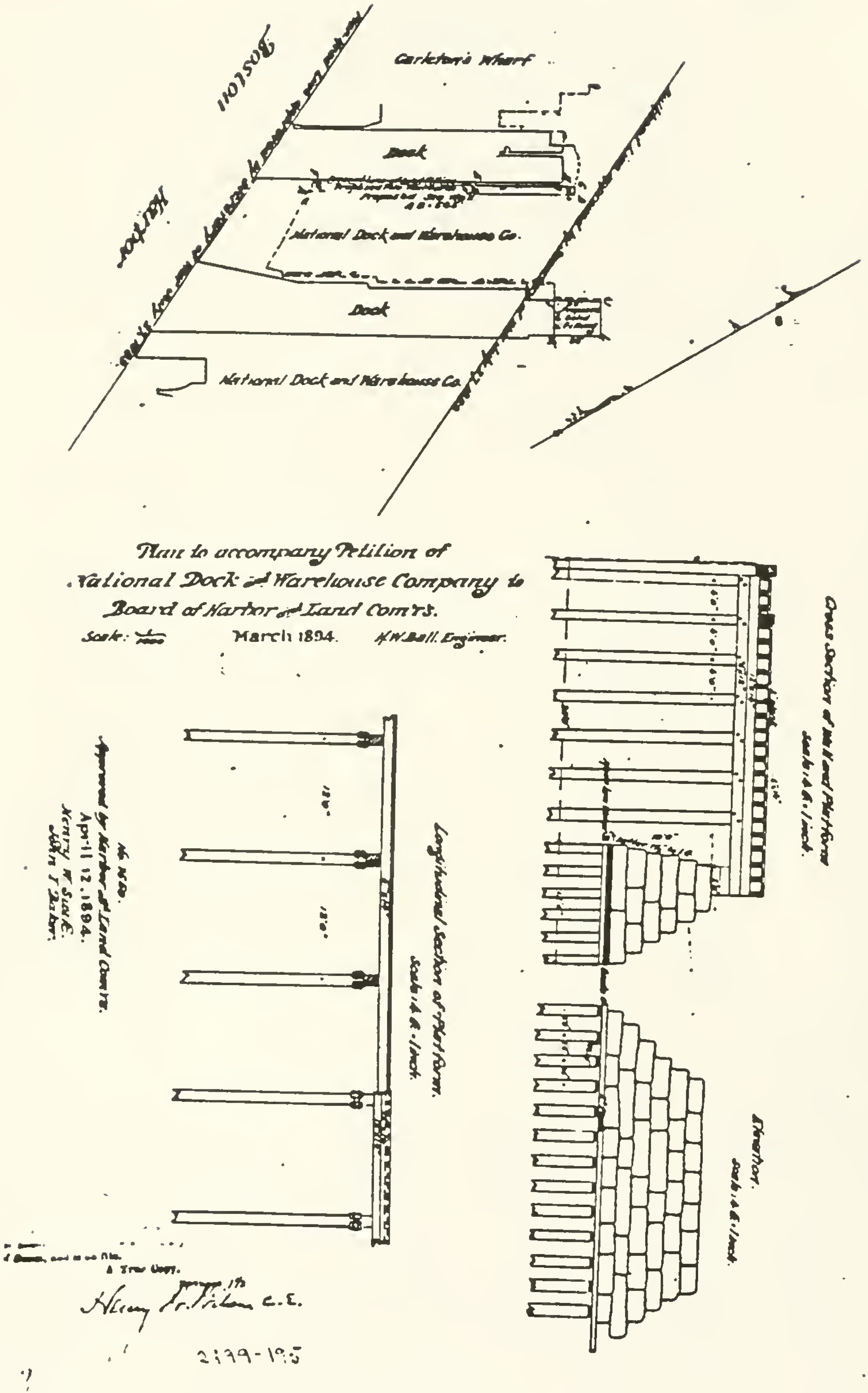
Com. of Mass. to National Dock & Warehouse Co.

Whereas, the National Dock and Warehouse Company of Boston, in the County of Suffolk and Commonwealth aforesaid, has applied to the Board of Harbor and Land Commissioners for license to build a sea wall and pile platform, and to fill solid a portion of its [illegible] in and over the tide waters of Boston Harbor at East Boston and has submitted plans of the same, and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given as required by law, to the Mayor and Aldermen of the City of Boston; Now, said Board, having heard the parties desiring to be heard, and having fully considered said application, hereby authorizes and licenses the said National Dock and Warehouse Company subject to the provisions of the nineteenth chapter of the Public Statutes, and of all laws which are or may be in force applicable thereto, to build a sea wall and pile platform, and fill solid a portion of its dock, in conformity with the accompanying plan No. 1150. Said sea wall may be built on lines described as follows. Beginning at a point marked A on said plan in the present line of solid filling on said Company's wharf, and on a line drawn parallel with and 7[illegible] feet Southeasterly from the Northwesterly side line of said wharf, and running Northeasterly on said parallel line, [illegible] feet to a point marked B, thence running Northwesterly [illegible] feet, more or less, to a point marked C, at the corner of the solid filling on said Company's premises shown on said plan; the present sea wall, solid filling and pile platform, Northwesterly

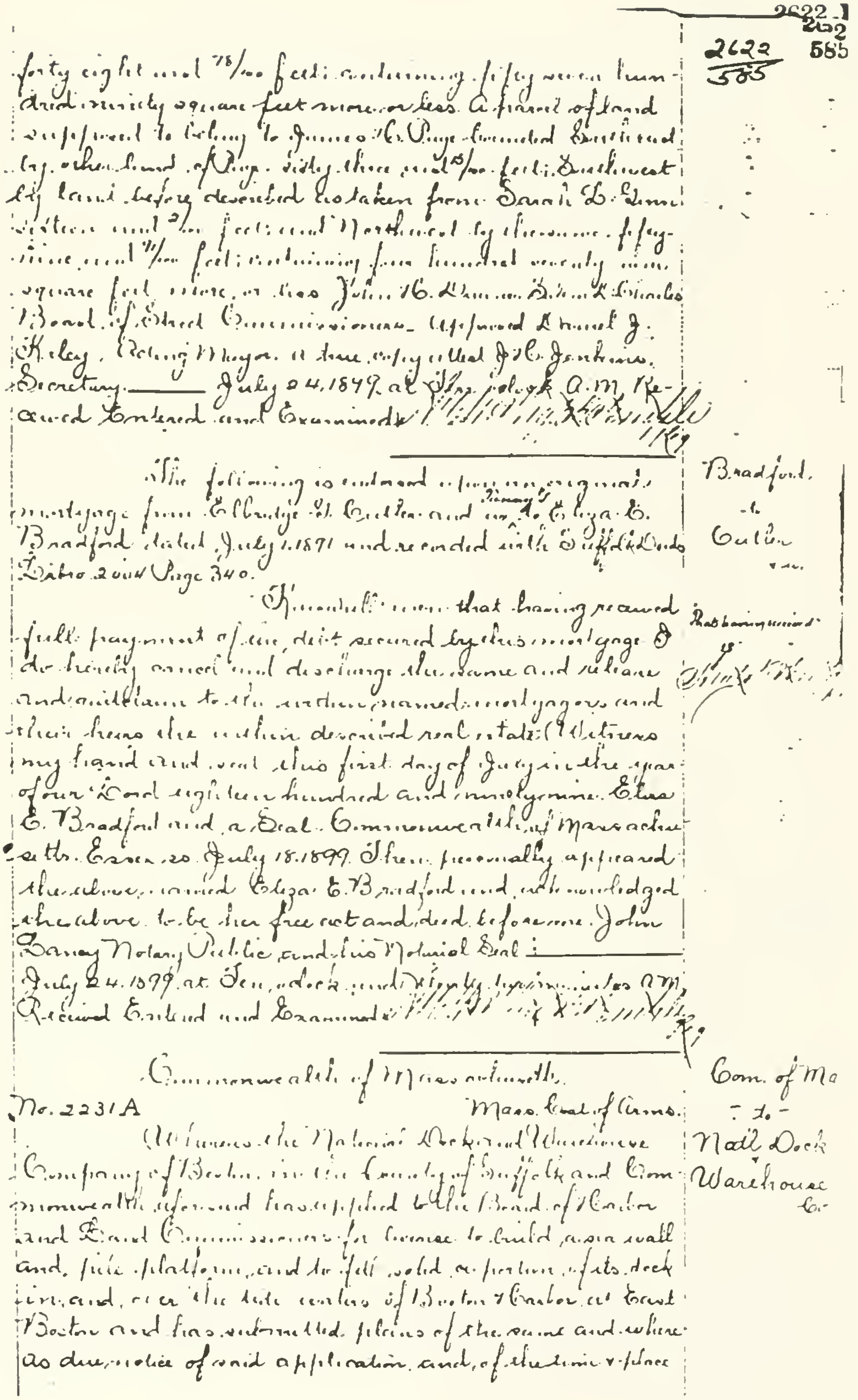


of said line A. B. and within lines marked A. B. C. D., C. D., E. F., & G. H. on said plan, and to be removed; a pile platform may be built northwesterly of and adjoining said line A B. within lines marked A. B. C. D., E. F., G. H., shown on said plan. Said Company is further authorized to fill solid a portion of its dock on the southeasterly side of said wharf, within lines described as follows: Beginning at a point marked D on said plan, at the northwesterly corner of said dock, and running southeasterly, in the northwesterly side line of said dock, 172 feet to a point marked E; thence running southwesterly 77 feet more or less to a point marked F, in the southeasterly side line of said dock; thence running northwesterly, in said southeasterly side line, 172 feet to a point marked G; thence running northeasterly to D the point of beginning. A sea wall or bulkhead shall be built on said line F. G. to retain the filling. The plan of said work is on file in the office of said Board, numbered 1650, and a duplicate of said plan accompanies this License, and is to be referred to as a part hereof. The amount of tide water displaced by the work hereby authorized, shall be ascertained by said Board, and compensation therefor shall be made by the said National Dock and Warehouse Company, its successors and assigns, by paying into the treasury of the Commonwealth thirty seven and one half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same, and the accompanying plan, are recorded, within one year from the date hereof, in the Registry of Deeds for the County of Suffolk. In witness whereof, said Board of Harbor and Land Commissioners hereunto set their hands this twelfth day of April in the year eighteen hundred and ninety four. Henry M. Brady, John I. Baker, Harbor and Land Commissioners. ______ May 11, 1894

At ten o'clock and fifty six minutes P.M. Received, Entered & Examined.


Boston Harbor
Carleton's Wharf
Dock
National Dock and Warehouse Co.
Dock
National Dock and Warehouse Co.
Plan to accompany Petition of
National Dock and Warehouse Company to
Board of Harbor and Land Com'rs.
Scale: 1/1000
March 1894.
H.W. Ball. Engineer.
Approved by Harbor and Land Com'rs.
April 12. 1894.
Henry W. Swift.
John T. Decker.
Longitudinal Section of Platform.
Cross Section of Wall and Platform
Elevation.
A True Copy.
Henry ... C.E.
2199-195

License No. 2231A
April 12, 1899
Book 2622, Page 585



forty eight and 78/100 feet; containing fifty seven hundred ninety square feet more or less. A parcel of land supposed to belong to James H. Page bounded Easterly by other land of Page sixty three and 15/100 feet; Southwest by land before described to be taken from Sarah L. Gunn sixteen and 2/100 feet; and Northwest by the same fifty nine and 71/100 feet; containing four hundred seventy nine square feet more or less. John H. Dunn, [illegible] Charles [illegible] Board of Street Commissioners. Approved Samuel J. Kiley, Acting Mayor. A true copy attest J. H. Jenkins, Secretary. —— July 24, 1899 at 9 o'clock A.M. Received Entered and Examined

Bradford
to
Cutler
dis.

The following is endorsed upon an original mortgage from Elbridge H. Cutler and wife to Eliza E. Bradford dated July 1, 1871 and recorded with Suffolk Deeds Libro 2004 Page 340.

Know all men that having received full payment of the debt secured by this mortgage I do hereby cancel and discharge the same and release and quitclaim to the within named mortgagors and their heirs the within described real estate. Witness my hand and seal this first day of July in the year of our Lord eighteen hundred and ninety nine. Eliza E. Bradford and a Seal. Commonwealth of Massachusetts. Essex ss. July 18, 1899. Then personally appeared the above named Eliza E. Bradford and acknowledged the above to be her free act and deed before me. John Dancy Notary Public and his Notarial Seal. —— July 24, 1899 at Ten o'clock and twenty [illegible] minutes A.M. Received Entered and Examined

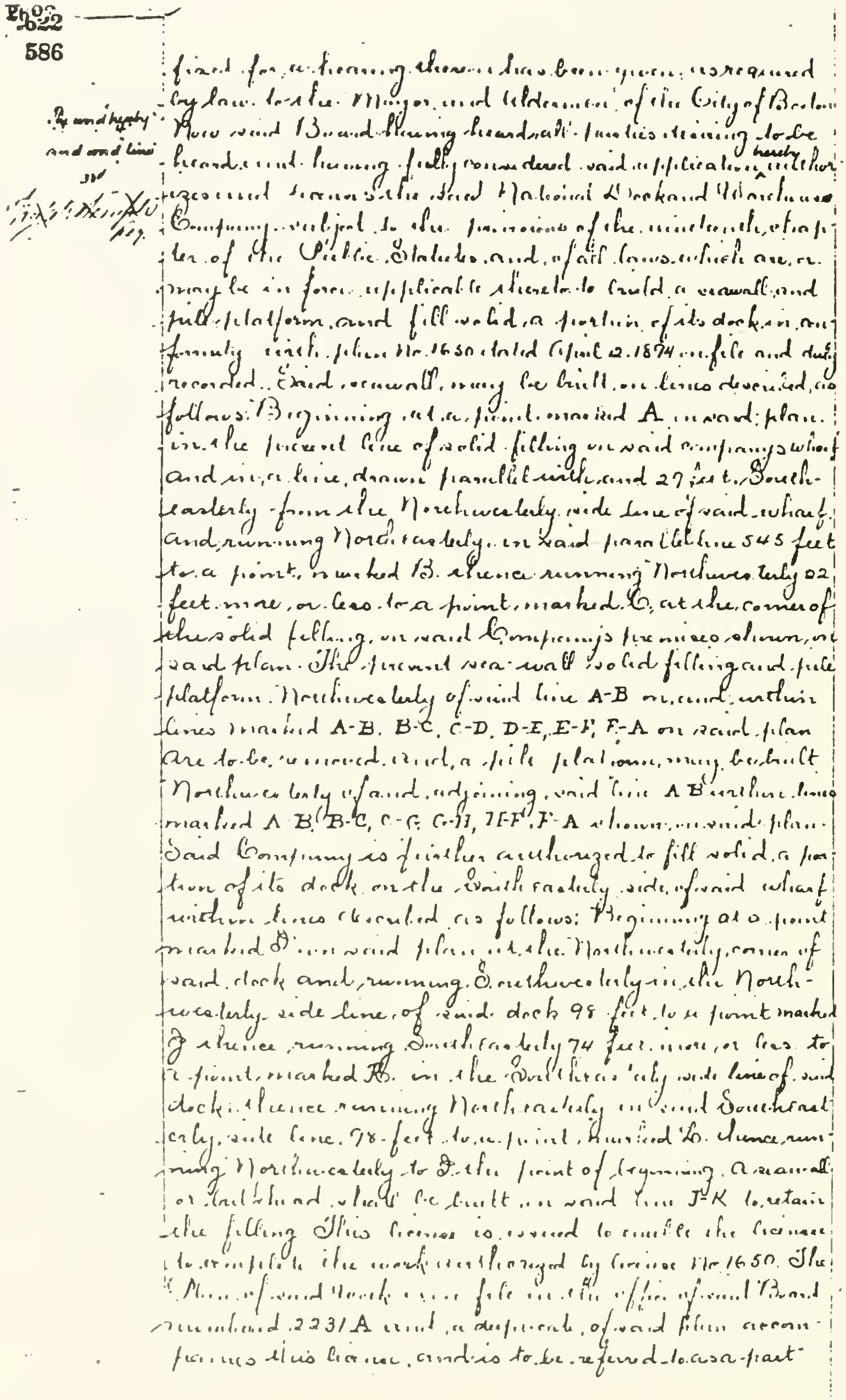
Com. of Ma
to
Nat'l Dock
Warehouse
Co.

Commonwealth of Massachusetts.

No. 2231A

Mass. Seal of Arms.

Whereas the National Dock and Warehouse Company of Boston in the County of Suffolk and Commonwealth aforesaid has applied to the Board of Harbor and Land Commissioners for license to build a sea wall and pile platform, and to fill solid a portion of its dock in and over the tide waters of Boston Harbor at East Boston and has submitted plans of the same and whereas due notice of said application and of the time & place



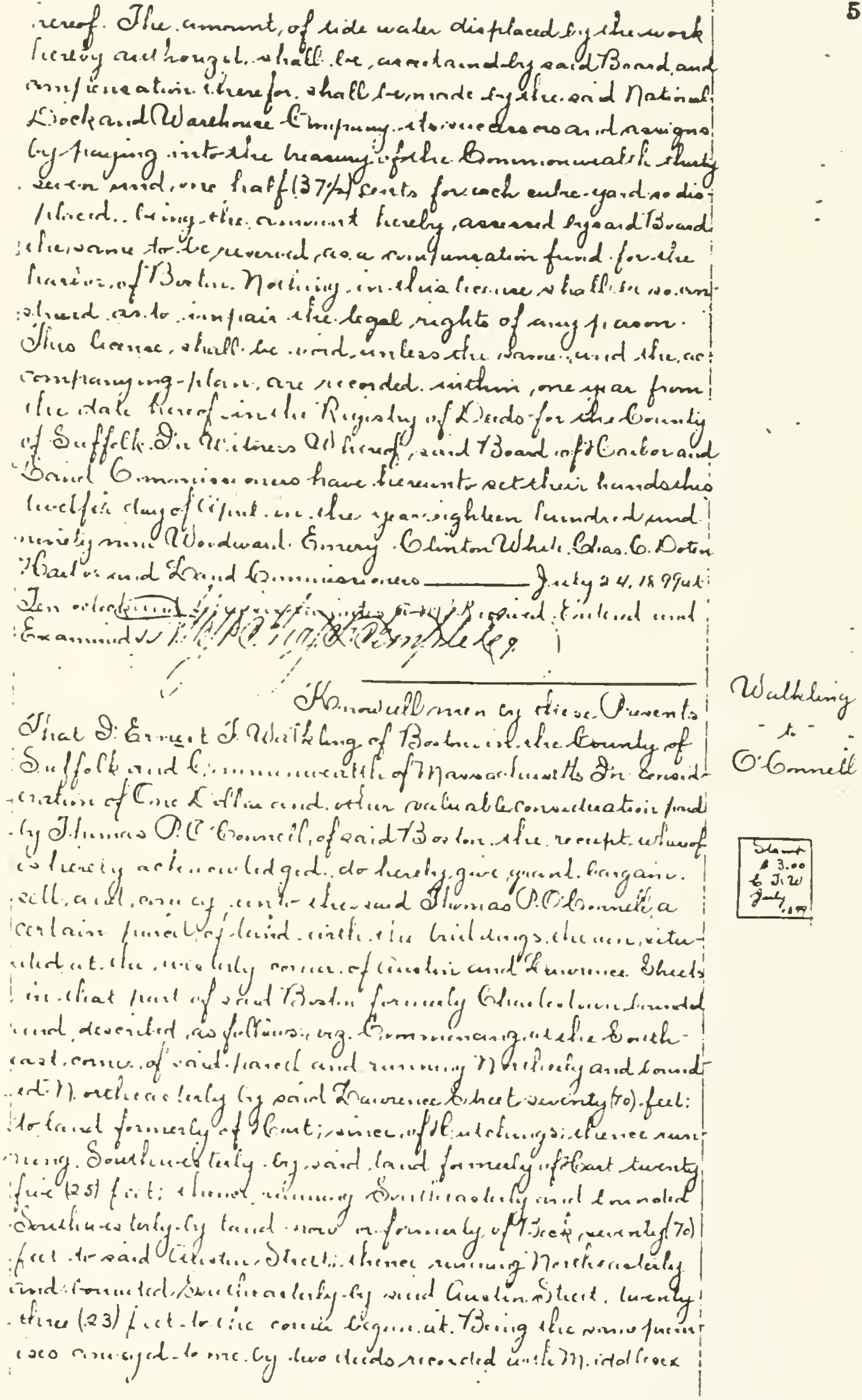
Pb 02
b22

586

The word hereby
and one line
in

[illegible]

fixed for a hearing thereon has been given, as required by law, to the Mayor and Aldermen of the City of Boston. Now said Board having heard all parties desiring to be heard, and having fully considered said application, hereby authorizes and licenses the said National Dock and Warehouse Company, subject to the provisions of the nineteenth chapter of the Public Statutes, and of all laws which are or may be in force applicable thereto, to build a seawall and pile platform, and fill solid a portion of its dock in conformity with plan No. 1650 dated April 2. 1874 on file and duly recorded. Said seawall may be built on lines described as follows: Beginning at a point marked A on said plan in the present line of solid filling on said company's wharf and in a line drawn parallel with and 27 feet Southeasterly from the Northwesterly side line of said wharf, and running Northeasterly in said parallel line 545 feet to a point marked B, thence running Northwesterly 02 feet more or less to a point marked C, at the corner of the solid filling on said Company's premises shown on said plan. The present sea-wall, solid filling and pile platform Northwesterly of said line A-B on and within lines marked A-B. B-C, C-D, D-E, E-F, F-A on said plan are to be removed, and a pile platform may be built Northwesterly of and adjoining said line A-B within lines marked A-B, B-C, C-G, G-H, H-F, F-A shown on said plan. Said Company is further authorized to fill solid a portion of its dock on the Southeasterly side of said wharf within lines described as follows: Beginning at a point marked I on said plan at the Northwesterly corner of said dock and running Southwesterly in the Northwesterly side line of said dock 98 feet to a point marked J, thence running Southeasterly 74 feet more or less to a point marked K in the Southeasterly side line of said dock, thence running Northeasterly in said Southeasterly side line 98 feet to a point marked L, thence running Northwesterly to I the point of beginning. A seawall or bulkhead shall be built on said line J-K to retain the filling. This license is issued to enable the licensee to complete the work authorized by license No. 1650. The plan of said work is on file in the office of said Board numbered 2231A and a duplicate of said plan accompanies this license, and is to be referred to as a part



hereof. The amount of tide water displaced by the work hereby authorized shall be ascertained by said Board, and compensation therefor shall be made by the said National Dock and Warehouse Company, its successors and assigns by paying into the treasury of the Commonwealth thirty seven and one half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this license shall be so construed as to impair the legal rights of any person. This license shall be void unless the same and the accompanying plan are recorded within one year from the date hereof in the Registry of Deeds for the County of Suffolk. In Witness Whereof, said Board of Harbor and Land Commissioners have hereunto set their hands this twelfth day of April in the year eighteen hundred and ninety nine. Woodward Emery. Clinton White. Chas. C. Doten Harbor and Land Commissioners —— July 24, 1899 at Ten o'clock and [illegible] minutes [illegible] Received Entered and Examined

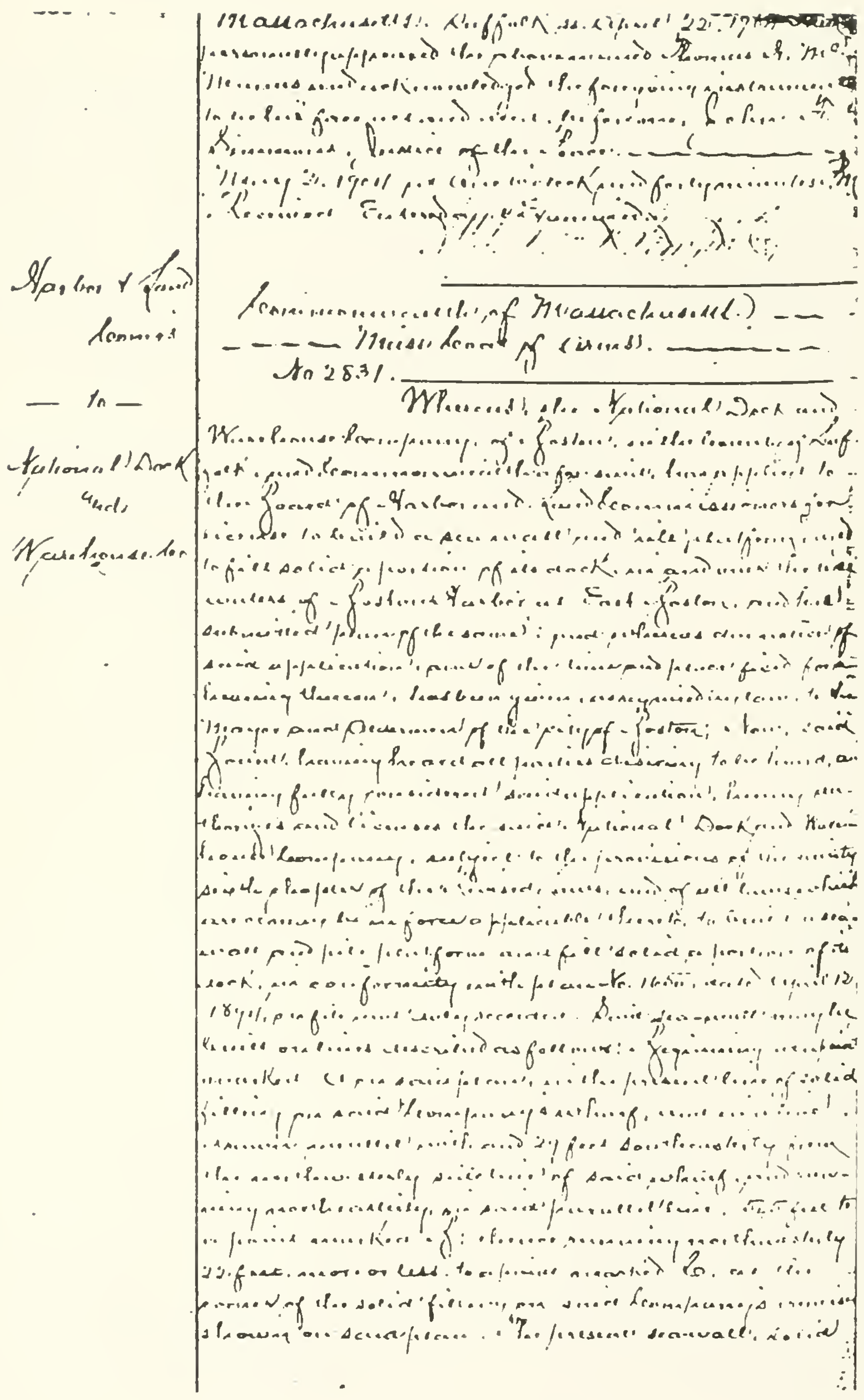
---

Walkling
to
O'Connell

Stamp
$3.00
E. J. W.
July [illegible]

Know all men by these Presents That I, Ernest J. Walkling of Boston in the County of Suffolk and Commonwealth of Massachusetts In consideration of One Dollar and other valuable consideration paid by Thomas P. O'Connell of said Boston the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the said Thomas P. O'Connell a certain parcel of land with the buildings thereon situated at the westerly corner of Austin and Lawrence Streets in that part of said Boston formerly Charlestown bounded and described as follows, viz: Commencing at the Southeast corner of said parcel and running Northerly and bounded Northeasterly by said Lawrence Street seventy (70) feet to land formerly of Hunt, since of Hutchings; thence running Southwesterly by said land formerly of Hunt twenty five (25) feet; thence running Southeasterly and bounded Southwesterly by land now or formerly of Peck, seventy (70) feet to said Austin Street; thence running Northeasterly and bounded Southeasterly by said Austin Street twenty three (23) feet to the corner begun at. Being the same premises conveyed to me by two deeds recorded with Middlesex

License No. 2831
April 21, 1904
Book 2964, Page 280



Harbor & Land Comm'rs — to — National Dock and Warehouse Co.

Massachusetts, Suffolk ss. April 22. 1911 [illegible] personally appeared the above named Thomas A. Mc[illegible] [illegible] and acknowledged the foregoing instrument to be his free act and deed, before me, John H. [illegible], Justice of the Peace.

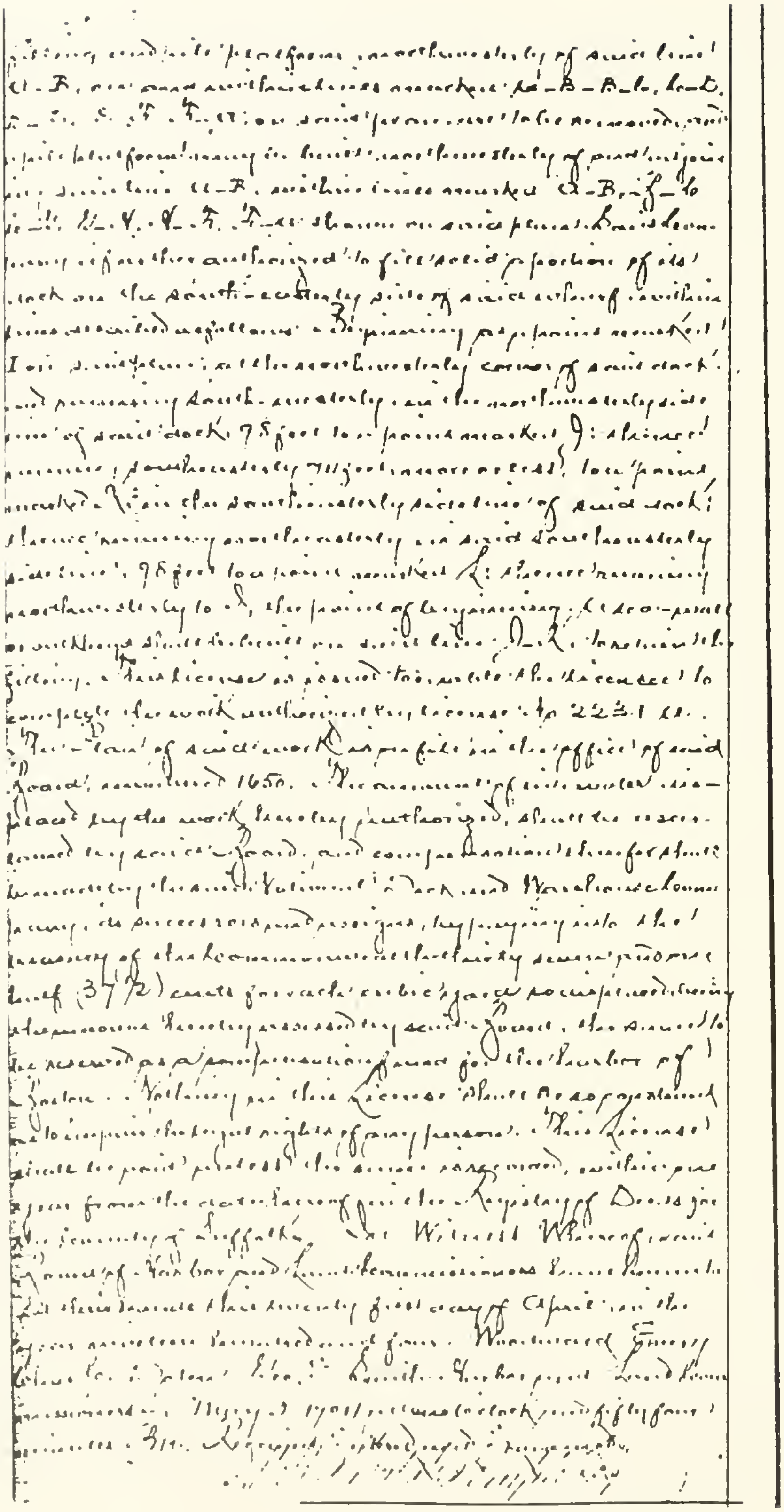
May 3. 1911 at One o'clock and forty minutes P.M. Received Entered and Examined [illegible]

Commonwealth of Massachusetts.

[illegible] of [illegible].

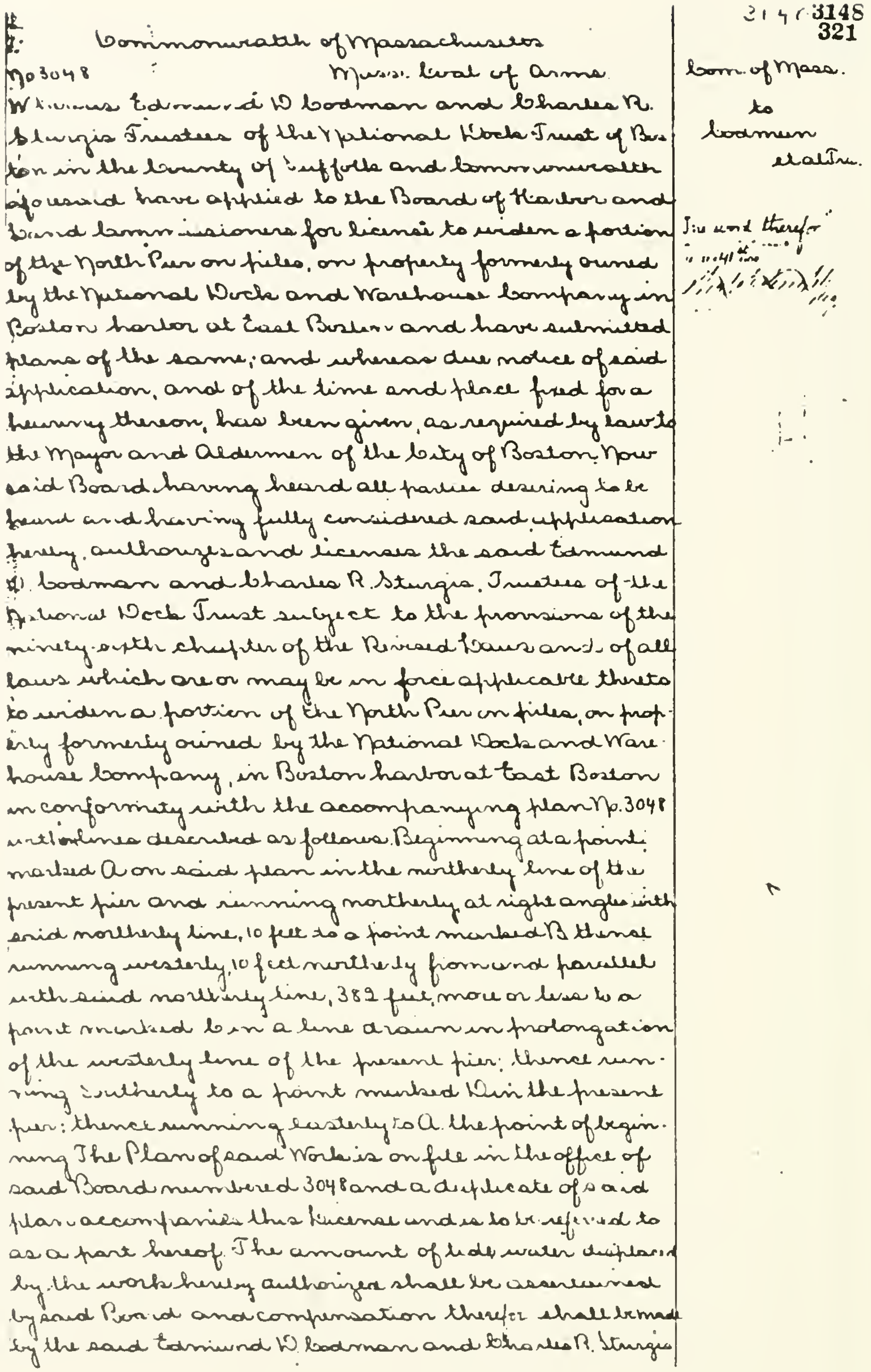
No 2831.

Whereas, the National Dock and Warehouse Company, of Boston, in the County of Suffolk, and Commonwealth aforesaid, has applied to the Board of Harbor and Land Commissioners for license to build a sea wall and pile platform and to fill solid a portion of its dock, in and over the tide waters of Boston Harbor at East Boston, and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Mayor and Aldermen of the City of Boston; Now, said Board, having heard all parties desiring to be heard, and having fully considered said application, hereby authorizes and licenses the said National Dock and Warehouse Company, subject to the provisions of the ninety-sixth chapter of the Revised Laws, and of all laws which are or may be in force applicable thereto, to build a sea wall and pile platform and fill solid a portion of its dock, in conformity with plan No. 1650, dated April 12, 1911, on file in said office. Said sea wall may be built on lines described as follows: Beginning at a point marked A on said plan, in the present line of solid filling on said Company's wharf, and in a line parallel with and 24 feet southeasterly from the northeasterly side line of said wharf, and running northeasterly on said parallel line, [illegible] feet to a point marked B; thence running northeasterly 22 feet, more or less, to a point marked C, at the corner of the solid filling on said Company's premises shown on said plan. The present seawall, said



filling and pile platform northwesterly of said line A-B, are now authorized as marked A-B-B-C, C-D, D-E, E-F, F-G, as shown on said plan, and to be removed; and said platform may be built northwesterly of and adjoining said line A-B, within lines marked A-B-[illegible] [illegible] as shown on said plan. Said Company is further authorized to fill solid a portion of its dock on the south-easterly side of said wharf, within lines described as follows: Beginning at a point marked I on said plan, at the northwesterly corner of said dock, and running south-westerly on the northwesterly side line of said dock 75 feet to a point marked J; thence running southeasterly 71 feet, more or less, to a point marked K on the southwesterly side line of said dock; thence running northeasterly on said southeasterly side line 75 feet to a point marked L; thence running northwesterly to I, the point of beginning. The sea-wall or bulkhead shall be built on said line [illegible] before the filling. This license is granted to enable the licensee to complete the work authorized by license No. 2231 [illegible]. The plan of said work is on file in the office of said Board, numbered 1650. The amount of tide water displaced by the work hereby authorized shall be ascertained by said Board, and compensation therefor shall be made by the said Volunteer Dock and Warehouse Company, its successors and assigns, by paying into the treasury of the Commonwealth thirty seven and one-half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be received as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same is recorded, within one year from the date hereof, in the Registry of Deeds for the County of Suffolk. In Witness Whereof, said Board of Harbor and Land Commissioners have hereunto set their hands this twenty first day of April in the year nineteen hundred and four. [illegible] Harbor and Land Commissioners. May 3 1904 at ten o'clock and fifty four minutes [illegible]. Rec'd, entered and examined.

License No. 3048
April 11, 1906
Book 3148, Page 321



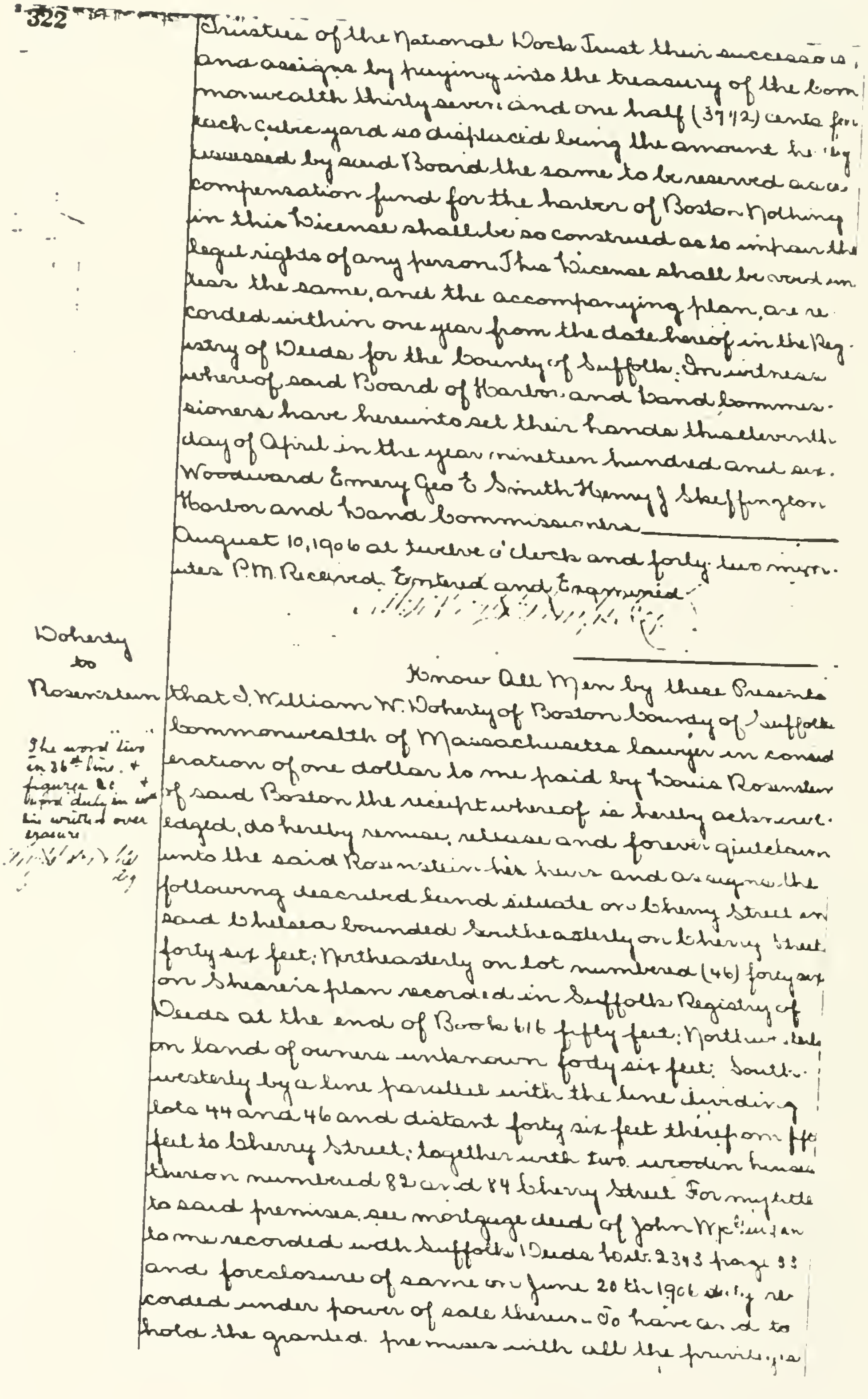
3148
321

Com. of Mass.
to
Codman
et al Tr.

Commonwealth of Massachusetts

No 3048 Mass. Coat of Arms

Whereas Edmund D Codman and Charles R. Sturgis Trustees of the National Dock Trust of Boston in the County of Suffolk and Commonwealth aforesaid have applied to the Board of Harbor and Land Commissioners for license to widen a portion of the North Pier on piles, on property formerly owned by the National Dock and Warehouse Company in Boston harbor at East Boston and have submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law to the Mayor and Aldermen of the City of Boston. Now said Board having heard all parties desiring to be heard and having fully considered said application hereby authorizes and licenses the said Edmund D. Codman and Charles R. Sturgis, Trustees of the National Dock Trust subject to the provisions of the ninety-sixth chapter of the Revised Laws and of all laws which are or may be in force applicable thereto to widen a portion of the North Pier on piles, on property formerly owned by the National Dock and Warehouse Company, in Boston harbor at East Boston in conformity with the accompanying plan No. 3048 within lines described as follows. Beginning at a point marked A on said plan in the northerly line of the present pier and running northerly at right angles with said northerly line, 10 feet to a point marked B thence running westerly, 10 feet northerly from and parallel with said northerly line, 382 feet, more or less to a point marked C in a line drawn in prolongation of the westerly line of the present pier; thence running southerly to a point marked D in the present pier; thence running easterly to A. the point of beginning. The Plan of said Work is on file in the office of said Board numbered 3048 and a duplicate of said plan accompanies this License and is to be referred to as a part hereof. The amount of tide water displaced by the work hereby authorized shall be ascertained by said Board and compensation therefor shall be made by the said Edmund D. Codman and Charles R. Sturgis



322

Trustees of the National Dock Trust their successors and assigns by paying into the treasury of the Commonwealth thirty seven and one half (37½) cents for each cubic yard so displaced being the amount hereby assessed by said Board the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same, and the accompanying plan, are recorded within one year from the date hereof in the Registry of Deeds for the County of Suffolk. In witness whereof said Board of Harbor and Land Commissioners have hereunto set their hands this eleventh day of April in the year nineteen hundred and six. Woodward Emery Geo E Smith Henry J Skeffington Harbor and Land Commissioners

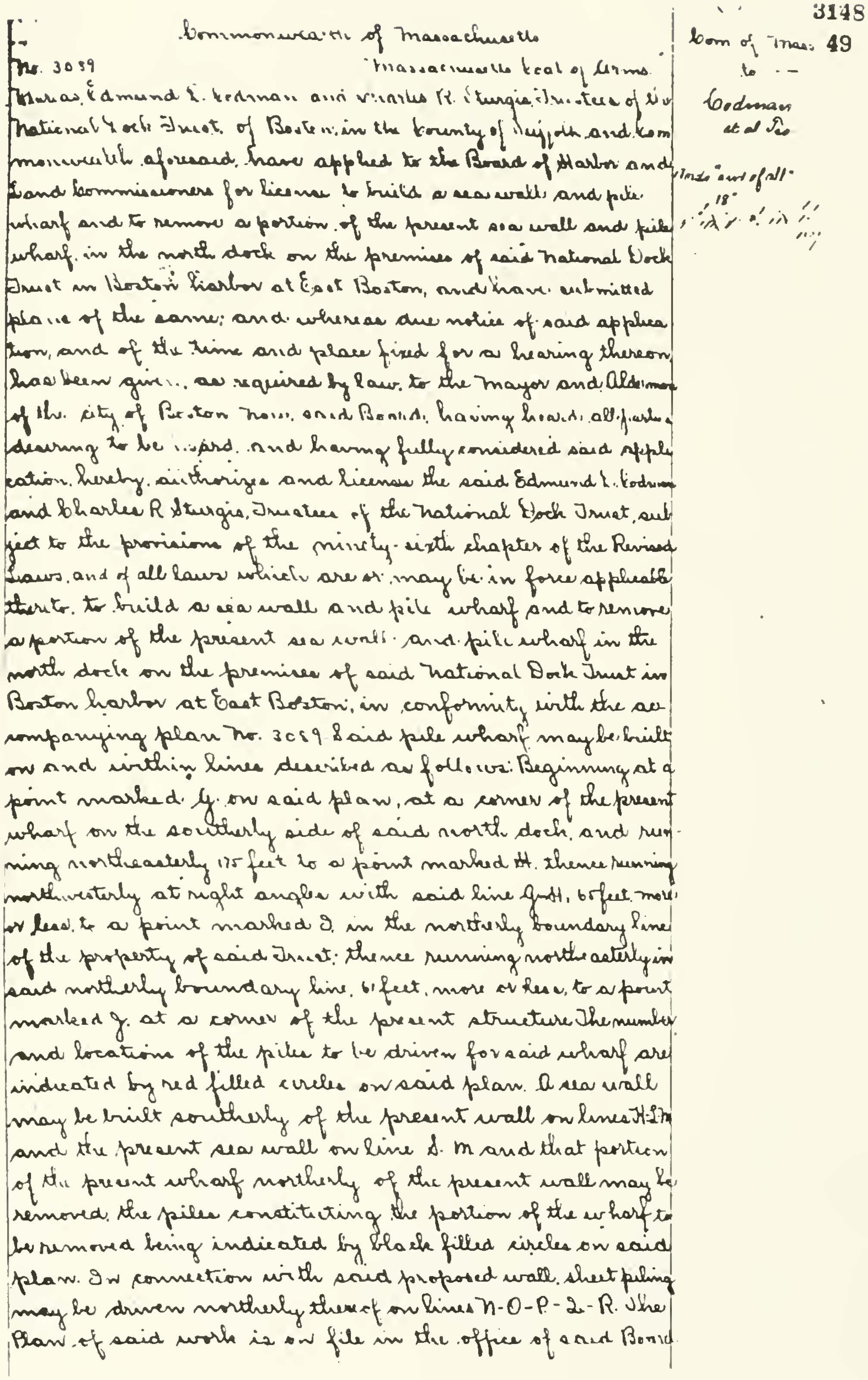
August 10, 1906 at twelve o'clock and forty two minutes P.M. Received Entered and Examined

Doherty
to
Rosenstein

The word "two" in 36th line. & figures 82 & [illegible] duly in [illegible] written over erasure

Know All Men by these Presents that I, William W. Doherty of Boston County of Suffolk Commonwealth of Massachusetts lawyer in consideration of one dollar to me paid by Louis Rosenstein of said Boston the receipt whereof is hereby acknowledged, do hereby remise, release and forever quitclaim unto the said Rosenstein his heirs and assigns the following described land situate on Cherry Street in said Chelsea bounded Southeasterly on Cherry Street forty six feet; Northeasterly on lot numbered (46) forty six on Shearer's plan recorded in Suffolk Registry of Deeds at the end of Book 616 fifty feet; Northwesterly on land of owners unknown forty six feet; Southwesterly by a line parallel with the line dividing lots 44 and 46 and distant forty six feet therefrom fifty feet to Cherry Street; together with two wooden houses thereon numbered 82 and 84 Cherry Street. For my title to said premises see mortgage deed of John McGuigan to me recorded with Suffolk Deeds Lib. 2343 page 33 and foreclosure of same on June 20th 1906 duly recorded under power of sale therein. To have and to hold the granted premises with all the privileges a

License No. 3089
July 20, 1906
Book 3148, Page 49



Com of Mass 49
to
Codman
et al Trs

Ind. "out of all"
18

Commonwealth of Massachusetts

No. 3089 "Massachusetts Seal of Arms."

Whereas Edmund D. Codman and Charles R. Sturgis Trustees of the National Dock Trust of Boston in the County of Suffolk and Commonwealth aforesaid, have applied to the Board of Harbor and Land Commissioners for license to build a sea wall and pile wharf and to remove a portion of the present sea wall and pile wharf in the north dock on the premises of said National Dock Trust in Boston harbor at East Boston, and have submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Mayor and Aldermen of the city of Boston now, said Board, having heard all parties desiring to be heard, and having fully considered said application, hereby authorizes and licenses the said Edmund D. Codman and Charles R Sturgis, Trustees of the National Dock Trust, subject to the provisions of the ninety-sixth chapter of the Revised Laws, and of all laws which are or may be in force applicable thereto, to build a sea wall and pile wharf and to remove a portion of the present sea wall and pile wharf in the north dock on the premises of said National Dock Trust in Boston harbor at East Boston, in conformity with the accompanying plan No. 3089 Said pile wharf may be built on and within lines described as follows: Beginning at a point marked G. on said plan, at a corner of the present wharf on the southerly side of said north dock, and running northeasterly 175 feet to a point marked H. thence running northwesterly at right angles with said line G-H, 60 feet more or less, to a point marked I. in the northerly boundary line of the property of said Trust; thence running northeasterly in said northerly boundary line, 61 feet, more or less, to a point marked J. at a corner of the present structure The number and locations of the piles to be driven for said wharf are indicated by red filled circles on said plan. A sea wall may be built southerly of the present wall on lines H-L-M and the present sea wall on line L-M and that portion of the present wharf northerly of the present wall may be removed, the piles constituting the portion of the wharf to be removed being indicated by black filled circles on said plan. In connection with said proposed wall, sheet piling may be driven northerly thereof on lines N-O-P-Q-R. The Plan of said work is on file in the office of said Board numbered 5029 and a duplicate of said plan accompanies this License, and is to be referred to as a part hereof. The net amount of tide water displaced by the work hereby authorized shall be ascertained by said Board, and compensation therefor shall be made by the said Edmund L. Redman and Charles R. Sturgis Trustees of the National Dock Trust, their successors and assigns, by paying into the Treasury of the Commonwealth thirty seven and one-half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same, and the accompanying plan, are recorded, within one year from the date hereof, in the Registry of Deeds for the County of Suffolk. In Witness Whereof, said Board of Harbor and Land Commissioners have hereunto set their hands this twentieth day of July, in the year nineteen hundred and six. Woodward Emery, Geo. E. Smith, Henry J. Neffington, Harbor and Land Commissioners ——August 8, 1906. At ten o'clock and ten minutes A.M. Received Entered and Examined.

The following is endorsed upon an original Mortgage deed from Nellie J. Wilkins and Walter H. Wilkins, her husband to Laura E. and Elizabeth M. Richardson dated June 30, 1902 Recorded with Suffolk Deeds Book 2855 page 558

Richardson
to
Wilkins

Know all Men by these Presents that we Laura E. Richardson and Elizabeth M. Richardson the within named mortgagees acknowledge that we have received full payment and satisfaction of the within mortgage debt, and in consideration thereof we do cancel and discharge the said debt and mortgage and release and quitclaim the within described premises to the said Nellie J. and Walter H. Wilkins mortgagors by whom the debt was paid. To have and hold the same to the said Nellie J. and Walter H. Wilkins, their heirs and assigns to their use and behoof forever. In Witness Whereof we hereto set our hands and seals this sixth day of August, 1906. Laura E. Richardson Elizabeth M. Richardson and each a seal. Commonwealth of Massachusetts, ss Aug. 7, 1906. Personally appeared the said Laura E. Richardson and Elizabeth

License No. 198
July 5, 1918
Book 4123, Page 523

any matter in dispute to arbitration or otherwise, to settle litigation, and to make and execute any releases, compromises, settlements, agreements or contracts by deed or otherwise in his opinion necessary or expedient; and, generally, for me and in my name, place, and stead to take general control and management of my affairs, business and property, and to do and perform all acts and things which he may consider useful and necessary connected with my said affairs, business, property and interests, giving and hereby granting unto him, my said attorney, full power and authority in and to the premises, with full power to make and substitute one or more attorneys and the same again at pleasure to revoke; and generally to do, act, transact, determine, accomplish, complete and finish all matters, affairs and things whatsoever for me and on my behalf or relating to the premises as fully, completely and effectually to all intents and purposes as I might or could do if present, although the matter might seem to require or should require more special authority than is herein comprised, it being the intention to include every power and authority hereunder; I, the said John Kenneth Howard, hereby ratifying and confirming, allowing and holding firm and valid all and whatsoever my said attorney or his substitute shall do or cause to be done in and about the premises and in and about any and all my affairs and property by virtue of these presents. IN WITNESS WHEREOF I hereunto set my hand and seal this twenty-first day of June, 1918. John Kenneth Howard and a seal. COMMONWEALTH OF MASSACHUSETTS. COUNTY OF SUFFOLK, ss. On this twenty-first day of June, 1918, before me personally appeared John Kenneth Howard, known to me to be the person described in and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed. Before me, John C. Rice, NOTARY PUBLIC Commonwealth of Massachusetts My Commission expires May 24, 1923 and his Notarial Seal. ————————— February 12, 1919. At two o'clock and seventeen minutes P. M. Received, Entered and Examined. ——————————————

THE COMMONWEALTH
OF MASSACHUSETTS
to
NATIONAL DOCK
TRUST Trs of

THE COMMONWEALTH OF MASSACHUSETTS No. 198.

MASSACHUSETTS COAT OF ARMS. WHEREAS, the Trustees of the National Dock Trust, of Boston, in the County of Suffolk and Commonwealth aforesaid, have applied to the Commission on Waterways and Public Lands for license to build a sea wall and fill solid in a dock in Boston Harbor at East Boston, and have submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Mayor and City Council of the City of Boston; NOW, said Commission, having heard all parties desiring to be heard, and having fully considered said application, hereby authorizes and licenses the said Trustees of the National Dock Trust, subject to the provisions of the ninety-sixth chapter of the Revised Laws, chapter 748 of the Acts of 1911, and of all laws which are or may be in force applicable thereto, to build a sea wall and fill solid in its dock in Boston Harbor at East Boston, in conformity with the accompanying plan No. 198. The area within the following described lines may be filled solid: Beginning at a point marked C on said plan, in the present wall on the northerly side of said dock, and 277 feet southwesterly from a point marked F on said plan at the intersection of said present wall and the present bulkhead shown on said plan, and running southeasterly 126 feet, more or less, to a point marked D in the present wall on the southerly side of said dock; thence running northeasterly in said present sea wall 272 feet to a point marked E at the intersection of said present wall and the present bulkhead shown on said plan; thence running northwesterly in said present bulkhead to said point F; thence running southwesterly in said present wall to C, the point of beginning. A sea wall shall be built on said line C-D, before the filling is commenced. This license is granted subject to the laws of the United States. The plan of said work, numbered 198 is on file in the office of said Commission, and a duplicate of said plan accompanies this License, and is to be referred to as a part hereof. The amount of tide-water displaced by the work hereby authorized shall be ascertained by said Commission, and compensation therefor shall be made by the said Trustees of the National Dock Trust, their successors and assigns, by paying into the treasury of the Commonwealth thirty-seven and one-half (37 1/2) cents for each cubic yard so displaced, being the amount hereby assessed by said Commission, the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same and the accompanying plan are recorded within one year from the date hereof, in the Registry of Deeds for the County of Suffolk. IN WITNESS WHEREOF, said Commission on Waterways and Public Lands have hereunto set their hands this fifth day of July, in the year nineteen hundred and eighteen. John N. Cole, Jesse B. Baxter, Commission on Waterways and Public Lands.———— February 12, 1919. At eleven o'clock and fifty-five minutes A. M. Received, Entered and Examined.————————

RIVERS
REVOCATION

KNOW ALL MEN BY THESE PRESENTS that WHEREAS I, Robert W. Rivers formerly of Milton in the County of Norfolk and Commonwealth of Massachusetts, but now of Brookline in said County of Norfolk, by an Indenture of Trust dated December 23, 1903 and recorded with Suffolk Deeds, Book 3002, Page 394, transferred and conveyed to George V. Leverett formerly of Boston in the County of Suffolk and said Commonwealth but now deceased, certain property to be held in trust by him upon the terms and conditions as in said Indenture set forth, and WHEREAS by the terms of said Indenture I reserved to myself the right at any time after reaching the age of thirty (30) years to revoke, change, add to or modify said Indenture by instrument in writing signed, sealed and acknowledged by me and recorded with said Suffolk Registry of Deeds and in any other place in which said Indenture should be recorded, and WHEREAS I have now reached the age of thirty (30) years and desire to avail myself of the provisions of revocation set forth in said Indenture and to repossess myself of all properties constituting said trust fund free and discharged of all trusts. NOW, THEREFORE, in exercise of the power so reserved by me and of every other power me hereunto enabling, I hereby revoke said trusts and the powers and provisions declared and contained by and in said Indenture concerning the trust fund thereby settled and the income thereof, and declare that the said trust, powers and provisions shall henceforth be void and of no effect; and I hereby further declare that the said trust funds and the income thereof shall henceforth be held by me in my own name and absolutely for my own use and benefit free and discharged of all trusts. IN WITNESS WHEREOF I hereunto set my hand and seal this eleventh day of February, 1919. Robert W. Rivers and a seal. COMMONWEALTH OF MASSACHUSETTS Suffolk ss. February 11, 1919. Then personally appeared the above-named Robert W. Rivers and acknowledged the foregoing instrument to be his free act and deed, before me John P. Jackson, Jr., Justice of the Peace. My commission expires Nov. 27, 1925. ———— February 13, 1919.

License No. 244
March 12, 1919
Book 4128, Page 441

THE COMMONWEALTH OF MASSACHUSETTS.

COMMONWEALTH OF
MASSACHUSETTS

to

NATIONAL DOCK
TRUST TRS OF

No. 344. MASSACHUSETTS COAT OF ARMS.

WHEREAS, the Trustees of the National Dock Trust, of Boston in the County of Suffolk and Commonwealth aforesaid, have applied to the Commission on Waterways and Public Lands for license to build and maintain a pile wharf and to place riprap of ballast in a dock in Boston Harbor at East Boston, and have submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Mayor and City Council of the city of Boston; NOW, said Commission, having heard all parties desiring to be heard, and having fully considered said application, hereby authorises and licenses the said Trustees of the National Dock Trust, subject to the provisions of the ninety-sixth chapter of the Revised Laws, chapter 748 of the Acts of 1911, and of all laws which are or may be in force applicable thereto, to build and maintain a pile wharf and to place riprap or ballast in the south dock at said Trustees' premises in Boston Harbor at East Boston, in conformity with the accompanying plan No. 344. Said wharf may be built within lines described as follows: Beginning at a point marked D on said plan, in the structure authorised to be built by said Trustees under license No. 198, granted July 5, 1918, by the Commission on Waterways and Public Lands, and in the present sea wall, and running southwesterly in said present sea wall 28 feet to a point marked O; thence running northeasterly, parallel with the line of structure authorised by said license No. 198, 135 feet, more or less, to a point marked B, in the present sea wall; thence running northeasterly, southeasterly and northeasterly, in the present wall, to a point marked C on said plan; thence running southeasterly to D, the point of beginning. Riprap or ballast may be deposited within the location of said pile wharf, as shown in section on said plan. This license is granted subject to the laws of the United States. The plan of said work, numbered 344 is on file in the office of said Commission, and a duplicate of said plan accompanies this License, and is to be referred to as a part hereof. The amount of tide-water displaced by the work hereby authorised shall be ascertained by said Commission, and compensation therefor shall be made by the said Trustees of the National Dock Trust, their successors, and assigns, by paying into the treasury of the Commonwealth, thirty-seven and one-half (37 1/2) cents for each cubic yard so displaced, being the amount hereby assessed by said

Commission, the same to be reserved as a compensation fund for the harbor of Boston. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same and the accompanying plan are recorded within one year from the date hereof, in the Registry of Deeds for the County of Suffolk. IN WITNESS WHEREOF, said Commission on Waterways and Public Lands have hereunto set their hands this twelfth day of March, in the year nineteen hundred and nineteen. John N. Cole Jesse B. Baxter William S. McNary Commission on Waterways and Public Lands. ---------- March 20, 1919. At eleven o'clock and fifty-seven minutes A.M. Received, Entered and Examined. -----

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HIGGINSON
et ux

to

GILLETTE
SAFETY
RAZOR CO.

Q.C.

U.S. Revenue Stamp of the amount of $.50 was affixed to this instrument and was canceled.

We, John Higginson and Cassie Higginson, his wife, in her right, both of Budore, Country Antrim, Ireland, for consideration paid, grant to the Gillette Safety Razor Company, a Corporation organized and existing under and by virtue of the laws of the State of Delaware, and having a usual place of business in Boston, Suffolk County, Massachusetts, United States of America, with QUITCLAIM COVENANTS, one undivided half part or share of the following described real estate, viz: the land in that part of said Boston, called South Boston, situated at a distance of 80 feet northeasterly from West Second Street, and bounded southwesterly on land formerly of Timothy Rich, 38 feet; southeasterly on land formerly of the South Boston Association 10 feet; northeasterly on land formerly of William Outterson, 38 feet; and northwesterly on land formerly of George Brinley, 10 feet. The southeasterly bound being now a part of Colton Street, formerly Green's Alley. Together with all my right, title and interest in the fee and soil of said Colton Street, where it abuts upon the above described premises. For my title see deeds from William Lowry to Mary Green, dated February 21, 1853, and December 20, 1859, recorded with Suffolk Deeds, Book 630, page 221, and Book 769, page 270, respectively, Suffolk Probate No. 67135 Estate of Mary Green and Suffolk Probate No. 72035 Estate of Jessie McConnell. Said premises are hereby conveyed subject to the rights of passageway in said deeds mentioned or referred to. WITNESS our hands and seals this thirty-first day of October, 1918. John Higginson Cassie Higginson and each a seal. Signed and Sealed by John Higginson and Cassie Higginson in presence of Wm. Hunter Solicitors Assistant 36 Corn Market Belfast Wm. McIldowie Solr. Belfast Ireland Belfast Ireland ss. 31st day of October, 1918.

License No. 342
July 19, 1923
Book 4491, Page 210

knowledged the foregoing instrument to be the free act and deed of Aberdeen Realty Corporation, before me, William F. Poole, Notary Public ------------------ At a meeting of the Aberdeen Realty Corporation held July 25, 1923 duly called for the purpose and a quorum being present it was voted to authorize Frederick A. Corbett, its Treasurer to affix the corporate seal and to sign, acknowledge and deliver a certain mortgage for twenty-five thousand dollars to F. A. Corbett personally, to be recorded in the Suffolk Registry of Deeds said mortgage being for three years from July 26, 1923, with interest at 6% per annum, covering estate numbered 1730 Commonwealth Ave. and being lot numbered 4 on a plan recorded with the Suffolk Deeds, book 3871, page 529. A true copy Attest: Josephine A. Ringrose, Clerk and the Corporate Seal ------------------ July 27, 1923. At eleven o'clock and forty-seven minutes A. M. Received, Entered and Examined--------

COMMONWEALTH
OF
MASSACHUSETTS
to
CODMAN et al
Trs.

THE COMMONWEALTH OF MASSACHUSETTS.

No. 342 Massachusetts Coat of Arms.

Whereas, Edmund D. Codman and Robert H. Gardiner, Jr. Trustees of the National Dock Trust of Boston in the County of Suffolk and Commonwealth aforesaid, have applied to the Department of Public Works, Division of Waterways and Public Lands, for license to build and maintain a sea wall and pile wharf, drive piles and do certain filling in Boston harbor at their premises at East Boston in the City of Boston and have submitted plans of the same and whereas due notice of said application and of the time and place fixed for a hearing thereon, has been given as required by law to the Mayor and City Council of the city of Boston; NOW, said Department Division of Waterways and Public Lands having heard all parties desiring to be heard and having fully considered said application, hereby authorizes and licenses the said Edmund D. Codman and Robert H. Gardiner, Jr. Trustees of the National Dock Trust subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to build and maintain a sea wall and pile wharf, drive piles and do certain filling in Boston harbor at their premises at East Boston in the City of Boston in conformity with the accompanying plan No. 342 Said sea wall may be built on lines described as follows: Beginning at a point marked G on said plan in the present wall and 15 feet from a corner of said present wall, and running southwesterly as shown on said plan 303 feet to a point marked H; thence running southeasterly at right angles with said line G-H

30 feet more or less to a point marked 1 in the wooden bulkhead shown on said plan. Piles may be driven within the area enclosed by said sea wall as shown by red circles on said plan and certain filling done as shown on said plan. Said pile wharf may be built northwesterly of and adjacent to said proposed sea wall G-H of the dimensions shown on said plan. The plan of said work, numbered 342 is on file in the office of said Department, Division of Waterways, and Public Lands, and a duplicate of said plan accompanies this license and is to be referred to as a part hereof. The amount of tide-water displaced by the work hereby authorized shall be ascertained by said Department, Division of Waterways and Public Lands, and compensation therefor shall be made by the said Edmund D. Codman and Robert H. Gardiner Jr. Trustees of the National Dock Trust, their successors and assigns by paying into the treasury of the Commonwealth, thirty-seven and one-half (37 1/2) cents for each cubic yard so displaced, being the amount hereby assessed by said Department, Division of Waterways and Public Lands, the same to be credited to the Port of Boston Fund. Nothing in this license shall be so construed as to impair the legal rights of any person. This license shall be void unless the same and the accompanying plan are recorded within one year from the date hereof in the Registry of Deeds for the County of Suffolk. IN WITNESS WHEREOF said Department of Public Works, Division of Waterways and Public Lands, have hereunto set their hands this nineteenth day of July in the year nineteen hundred and twenty-three. William F. Williams, Jesse B. Baxter, Richard K. Hale, Department of Public Works, Division of Waterways and Public Lands. Approved William F. Williams, Commissioner of Public Works. ------------------- July 27, 1923. At eleven o'clock and forty-seven minutes A. M. Received Entered and Examined --

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HOSFORD DISCHARGE

I, John T. Hosford, holder of a mortgage from Cathryn M. Munday to me dated June 27, 1923 recorded with Suffolk Deeds on June 27, 1923 acknowledge satisfaction of the same. WITNESS my hand and seal this 25th day of July, 1923. John T. Hosford and a seal. COMMONWEALTH OF MASSACHUSETTS. Suffolk, ss Boston July 25, 1923 Then personally appeared the above named John T. Hosford and acknowledged the foregoing instrument to be his free act and deed, before me. George E. Jacobs, Justice of the Peace ---------------- July 27, 1923. At eleven o'clock and forty-eight minutes A. M. Received Entered and Examined --

Appendix F—Water-Related Activities

The following Appendix supplements Chapter IVD (Water-Related Activities) of this Final EIR. This Appendix includes information addressing the following topics:

- Wind Conditions
- Wave Conditions
- Wake Conditions
- Wave Attenuation Facilities
- Potential Maritime Conflicts

CLIPPERSHIP WHARF
BOSTON, MASS.
PROPOSED DEVELOPMENT:

WAVE, WAKE and ATTENUATION ANALYSIS

NOVEMBER 11, 1987

Prepared by: Waterfront Design Associates
Oceanographic Studies, Inc.

Ronald C. Kollmeyer, PhD
Bruce O. Tobiasson, PE

OWNERSHIP OF THIS DOCUMENT

This document, the ideas and original designs incorporated herein, as an instrument of professional service, is the property of Waterfront Design Associates/Oceanographic Studies, Inc., and is not to be used, in whole or in part, for any other project without the written authorization of Waterfront Design Associates/Oceanographic Studies, Inc.

WIND WAVE CLIMATE ANALYSIS

General

Clippership Wharf is located within the middle reaches of Boston Harbor, approximately 4.5 miles from its mouth at the President Roads entrance between Deer Island and Long Island. It is an exposed wind wave location for waves emanating from the southeast through to the northwest. Winds from the east and north sectors are blocked by the land. The pier complex extends close to the channel with water depths in excess of 20 feet. Due to these depths surrounding the pier, sizeable waves can approach during storm conditions. The main wave threat is from extra tropical cyclones, or hurricanes, with the strongest winds coming from a southeasterly direction. This wind direction will produce important wave fields which may travel the length of the harbor from the more open ocean conditions beyond the Deer Island entrance. There is no way to predict that the winds from a hurricane will in fact blow parallel to the harbor channel axis, but since this is a possibility it must be included in the determination of the design waves.

The object of this study was to determine the temporal wave climate that is expected to normally exist on an annual basis in the vicinity of the proposed Clippership Wharf site. In addition, the extreme waves expected to visit the site within a 100 year period, including extreme hurricane wind conditions, were also determined. This is an important aspect to proposing alternative solutions for solving any existing wave problems at the proposed site and properly designing the system to withstand the expected extreme waves. The wave heights, periods, their arrival directions, and especially how often they may occur, are important economic considerations of the problem. Ultimately, a cost/benefit ratio should be established in order to decide which wave regimes may be ameliorated within financial constraints and which ones may be too expensive to block entirely but must be attenuated to some extent. The approach taken herein is to examine the worst case to be expected based on the best available data. Often, the worst case produces design conditions which are not feasible or logical criteria on which to base a development project. Expense, space availability, or a desire to protect the planned facility up to an arbitrary limit may cause a reduction in the level of acceptable design storm intensity. In that case, shorter storm return periods with their commensurate lower wind velocities, wave heights, and flood water levels should be contrasted against their probability of occurrence and the damage level that may be acceptable. This will lower initial capitol costs while increasing potential future costs for damage repairs and insurance.

This report is a summary of the research carried out. It is intended to present the procedures followed and to document the findings. The detailed data listings, computer program output results, and wave height and frequency determinations used in the preparation of this report may then used as the quantitative base for evaluating wave attenuation requirements and computing the loading forces on the structural systems proposed for Clippership Wharf.

Wave vulnerability for the proposed site stems from two sources referred to herein as the near field and the far field. The near field source consists of those waves which can be locally produced within the environs of Boston Harbor. This area is shown in Figure 1. Locally developed waves, produced by winds from the southeast through the northwest directions can produce severe sea conditions during the occurrence of extreme winds. The far field source consists of those waves produced by winds over the greater distances of Massachusetts Bay. These Far field waves are expected to travel from the direction of their generation and into Boston Harbor towards Clippership Wharf through the process of shallow water refraction. These Far field waves are expected to be long period and with considerable height out in Massachusetts Bay. The success of their arrival off the site is a function of their wave lengths and direction of initial approach from the Far field sector. Due to the refraction and energy spreading that must take place as they travel through the complex entrance to Boston Harbor and along the channel prior to their arrival at Clippership Wharf, these waves will be reduced to low heights. Local knowledge indicates that these surge type waves occur, but due to their long periods, on the order of 10 seconds, and the relatively low heights of approximately 2 feet, these waves are not considered important force considerations on engineering structures. The near field wave regime therefore appears to be the important energy element for consideration in the design of the proposed development at Clippership Wharf.

Two analysis were carried out and reported on herein. They include:

1. The maximum annual waves expected at the site. These are the waves that will have to be

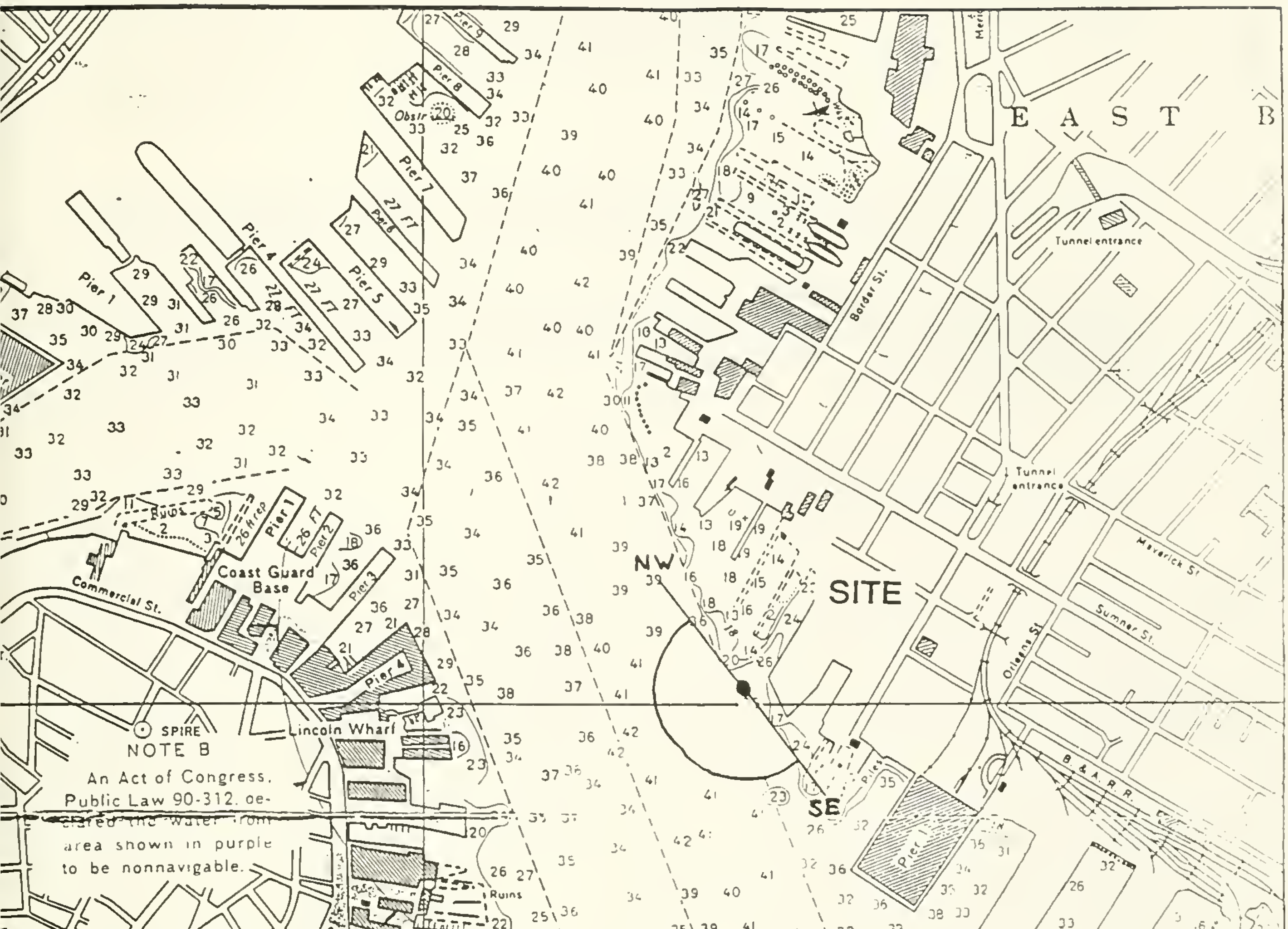

E A S T B
SITE
NW
SE
TON
Pier 1
Pier 4
Pier 5
Pier 6
Pier 7
Pier 8
Pier 9
Pier 2
Pier 3
Coast Guard Base
Commercial St.
Lincoln Wharf
SPIRE
NOTE B
An Act of Congress, Public Law 90-312, declared the water from area shown in purple to be nonnavigable.
Atlantic Ave.
Ruins
Obstr
TOWER (CUSTOM HOUSE)
India Wharf
Post Office
Border St.
Tunnel entrance
Maverick St.
Sumner St.
Orleans St.
B. & A. R.R.

Figure 1.

ameliorated in order to provide a safe and comfortable marina basin at the Clippership Wharf.

2. The extreme wave conditions that may occur in the area. These extreme wind and wave conditions represent the structural design criteria needed to successfully design and install the marina structures.

Local Wind Conditions

The near field wave systems will be produced on a temporal basis as a direct function of wind direction, velocity, fetch distance over which the wind can act on the water, and water depth. Since the interest lies in the maximum wave height production and extreme wave fields which may occur, an analysis was first made of the historical and predicted wind climate for Boston Harbor. Site specific wind conditions for Clippership Wharf are not available. Wind data is regularly collected at Logan International Airport, approximately one nautical mile to the east of Clippership Wharf. This is considered close enough to the site so as to be representative of the winds that will occur there.

The following sources were used to determine the potential maximum wind velocity for the purpose of predicting the extreme near field wave climate:

1. Comparative Climatic Data for the United States through 1981. National Oceanic and Atmospheric Admin (NOAA). Monthly average and maximum wind speeds, Boston, Mass.

2. Climatology of the United States No. 90. (1965-1974) NOAA. General Logan International Airport, Boston, Mass.

3. Frequency and Motion of Atlantic Tropical Cyclones. NOAA Technical Report NWS 26, March 1981.

4. Tropical Cyclones of the North Atlantic Ocean, 1871-1980. NOAA.

5. Extreme Wind Speeds at 129 Stations in the Contiguous United States, National

Bureau of Standards Building Science Series 118, Department of Commerce.

The Comparative Climatic Data for the United States through 1981 for Boston (revised to 1983) has been recorded over a 25 year period and reports the following maximum winds on a monthly basis:

Month	Wind dir.	Highest velocity knots
Jan	NW	53
Feb	NE	53
Mar	NE	52
Apr	NW	45
May	NE	43
Jun	NW	41
Jul	N	40
Aug	SW	39
Sep	S	49
Oct	SE	42
Nov	NE	47
Dec	NW	42

Climatology of the United States No. 90. for Logan Airport reports on a 10 year maximum wind collection project that was carried out from 1965 to 1974. The maximum winds measured, no directions are given, for that time period were as follows:

Month	Highest velocity knots
Jan	53
Feb	49
Mar	48
Apr	37
May	43
Jun	30
Jul	30
Aug	39
Sep	43
Oct	31
Nov	47
Dec	41

The National Bureau of Standards Building Science Series 118. Extreme Wind Speeds at 129 Stations in the Contiguous United States. U.S. Department of Commerce, Boston, Massachusetts 1936-1977. Data given as corrected speed at 10 meters of elevation.

Fastest mile wind speed: August 31, 1954, SE at 74 knots
Next fastest recorded: September 21, 1938, S at 69 knots
Next fastest recorded: August 8, 1958, N at 65 knots
Next fastest recorded: November 26, 1950, SE at 64 knots
The 20 year return period predicts the highest wind at 66.0 knots
The 50 year return period predicts the highest wind at 73.5 knots
The 100 year return period predicts the highest wind at 79.3 knots
The 500 year return period predicts the highest wind at 93.9 knot

Maximum wind velocities recorded for the past 48 years, up to 1983, which excludes hurricane Gloria, show that maximum one-minute sustained winds have reached 74 knots (85 mph). The publication Frequency and Motion of Atlantic Tropical Cyclones, NOAA Technical Report NWS 26, March 1981, indicates that hurricane conditions can occur in the area, with the estimated return periods for winds generated by tropical cyclones along coastal Massachusetts as given below:

Winds equal to or greater than 34 kts: 6 years
Winds equal to or greater than 64 kts: 14 years
Winds equal to or greater than 100 kts: > 100 years

Considering only direct hits on the Massachusetts shoreline, a total of 6 hurricanes have arrived since 1899, with the latest marginal hurricane "Gloria" of 1985. This includes three Category 1 hurricanes, one Category 2, and two Category 3 hurricanes along with hurricane Carol which was a Category 3 hurricane but travelled parallel to the coast, some 50 miles inland. These are shown listed below:

MO/YEAR	CATEGORY	NAME
7/1916	1	---
9/1938	3	---
9/1944	2	---
8/1954	(3)	CAROL (not coastal)
9/1954	3	EDNA
9/1960	1	DONNA
9/1985	1	GLORIA

A Category 1 hurricane will bring sustained winds of up to 83 knots (95 mph) and a storm surge of 4 to 5 feet above normal water levels. The arrival of a Category 3 hurricane will be accompanied by sustained winds of up to 113 knots (130 mph) and a storm surge of 9 to 12 feet above normal levels. The 1938 hurricane is classified as a Category 3 hurricane. The arrival of a Category 5 hurricane will be accompanied by sustained winds of 135 knots (155 mph) and greater. This is the upper limit to the Category classification and any hurricane with winds above 135 knots is considered in this Category. There is no upper limit set for the wind velocity. It also predicts a storm surge water level for a Category 5 hurricane of greater than 18 feet above normal. There are no records for the coastal U.S. to substantiate that prediction since only one Category 5 hurricane has ever arrived since accurate records have been kept from about 1899. That hurricane was "Camille", striking the Louisiana and Mississippi coasts in August of 1969. There is no information that a storm of this intensity has ever arrived in the vicinity of the Massachusett's shoreline.

Tidal information was provided by NOAA, based on the tide gauge in Boston Harbor for the 1960-1978 tidal epoch. These data are preliminary at this time and subject to slight changes when finally officially published. All data are given in feet above the Army Corps of Engineers defined "Boston Low Water datum" (0.0)

Highest recorded tide, 2/7/78	**15.26**
Mean high water (MHW)	**9.93**
Mean tide level (MTL)	**5.16**
NGVD 1929	**4.95**
Mean low water (MLW)	**0.39**
Boston low water	**0.00 -- DATUM**

Water level datums for Boston Harbor can be confusing. Mean Low Water (MLW) is the common datum used for most east coast areas. However, Boston also has the ACOE defined Boston low water datum, and in addition, the Boston City Base which is approximately 0.81 lower than the MLW datum. The record water level for Boston, recorded during the previous 1941-1959 tidal epoch, National Ocean Survey, NOAA, occurred during a northeast storm event on December 29, 1959 with a tidal height of 13.9, in this case, above MLW and slightly lower than that recorded for the 1960-1978 tidal epoch of 14.87 MLW as shown above. Due to rising sea levels, the latest tidal epoch is approximately 0.13 feet above the previous 1941-1959 epoch. Boston Harbor has a mean tide range of 9.5 feet and a spring range of 11.0 feet Other high water levels, which were recorded during previous years have less validity due to the older and less precise methods of recording are: April 1851, 15.5 (MLW), December 1909, 15.2, and November 1898, 14.6. It is interesting to note that the highest recorded tide on December 29, 1959 is not associated with a hurricane event, and the February 7, 1978 event occurred during a blizzard with winds from the northeast at 53 knots. The following high water return periods for Boston Harbor in the vicinity of Clippership Wharf are predicted by the ACOE to be as follows:

Return Period years	SWL Height above MLW in feet.
10	13.8
50	14.6
100	15.0
500	15.8

Any existing wave crest elevations would be superposed atop of these levels. The wave crest elevations are generally considered to be 70 percent of the actual wave height. The actual wave heights will be limited to no more than 77 percent of the water depth or they will break.

Studies carried out by the Federal Emergency Management Agency (FEMA), Flood Insurance Study for Boston Massachusetts, Suffolk County, April 1, 1982 give maximum 100 year base flood water levels for the site to be plus 10.0 feet above NGVD, or 14.95 feet above the latest MLW elevation. The site is included within the Boston Inner Harbor A2 zone. No wave studies have been carried out by FEMA within Boston Harbor and therefore no V Zones, or high velocity wave zones are listed. However, contact with the Boston FEMA office disclosed that a wave study is scheduled to be accomplished within the next two years which will most certainly result in the establishment of V Zones within the harbor.

Hurricanes represent the greatest wind threat to Boston Harbor. Potentially very high winds and extreme wave conditions can result. The data from 48 years of wind recording as listed in the National Bureau of Standards Series 118 does not indicate that Boston has ever experienced the greatest wind potential from arriving hurricanes. This is probably because of the general protection the harbor location enjoys from storms traveling north along the Atlantic coast. These storms have a history of either veering seaward just to the south of Cape Cod, or traveling overland before their arrival at Boston. In either case, the most extreme wind condition from these storms has apparently never been experienced.

Maximum Annual Wave Height Predictions

An effective fetch method was used to determine the wind fetch distances from a direction of 135 to 315 degrees true for the proposed Clippership Wharf Development site. Due to the narrowness of the harbor configuration, the effective wind fetch is less than the available over the water straight line fetch. Following the procedures of the Shore Protection Manual, U.S. Army Corps of Engineers, Vol I, 1984, using the nine small angle radial method, produces expected fetch distances for the maximum wind directions. Winds from the southeast, the potentially strongest wind direction with a large open fetch, are blocked in part by land and shoreline structures. Extreme waves emanating from this direction are discussed in the section on Extreme Waves.

Using the maximum expected annual wind values by direction, available effective fetch distance and water depth, the near field maximum expected annual wave climate was determined. All wave heights, wave lengths and periods were determined by a digital computer program using the equations given in the Shore Protection Manual, U.S. Army Corps of Engineers, Vol I, 1984 for transitional depth waves. Solutions were obtained for wave periods, wave lengths, the highest 10 percent of expected waves, the significant wave height, the average wave height and the most frequent height. The location where the near field waves were determined is shown on Figure 1. Appendix A contains the predicted wave heights for Clippership Wharf for various directions and maximum recorded wind velocities and are summarized below.

Maximum waves normally expected to occur on an annual basis

Direction degrees T	Highest 10 % ft.	Significant waves ft.	Period seconds
158-180(SSE-S)	3.5	2.7	2.5
203(SSW)	2.2	1.8	2.0
225(SW)	1.7	1.3	1.7
248(WSW)	1.6	1.2	1.6
270(W)	1.6	1.2	1.6
293(WNW)	2.2	1.8	2.0
315(NW)	2.8	2.2	2.1

Since the above waves are predicted from relatively long term wind data, they must be considered the norm for any particular year. Anomalous years will occur where the waves could be less than indicated, as well as greater than that shown.

Wave Climate Histograms

The percentage of occurrence of wind velocities from each 22.5 degree sectors (ie, SSE, S, SSW, etc.) for January through December were determined from the wind summaries cited above. Wind velocity categories included: 0-10 knots, 11-16 knots, 17-21 knots, 22-27 knots, 28-33 knots, 34-40 knots and the maximum wind velocities for each month. These data were further combined to produce wind data for tri-monthly periods, representing the expected 25 year mean. These tri-monthly wind summaries were then used to produce average wave climates for Clippership Wharf for each of the periods starting with December-January-February.

Four, tri-monthly periods of data were prepared in order to produce histograms of locally produced wind wave conditions at Clippership Wharf. The data used in preparing these histograms included the wave height predictions shown in Appendix A and the frequency of occurrence of the wind specific conditions described above. The resulting tri-monthly histograms are shown as Figures 2 through 5. These histograms show the percentage of time for each tri-monthly period that wave heights are normally expected to be less than given values. Since these waves are predicted from long term wind data, they must be considered the norm for any particular year. Anomalous years will occur where the waves could be less than

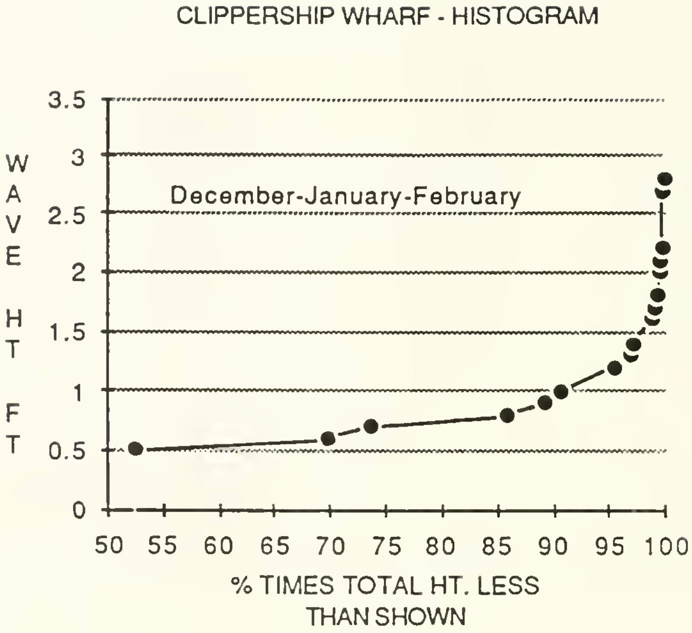


Figure 2.

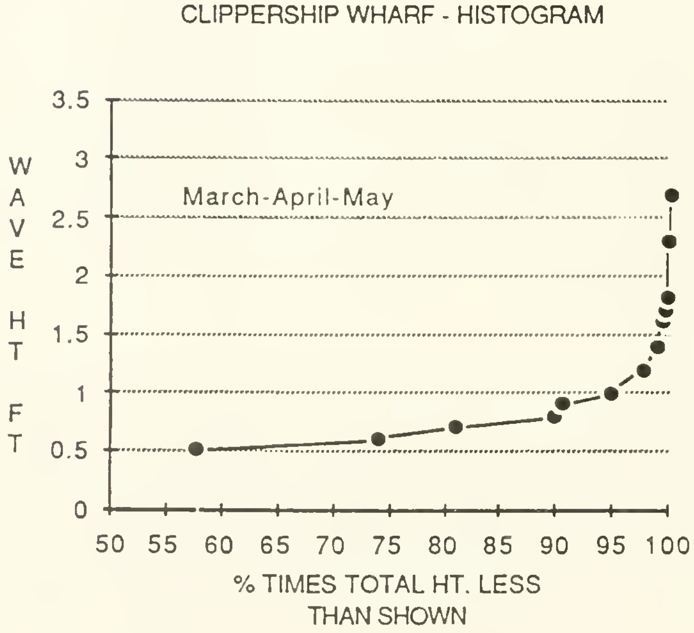


Figure 3.

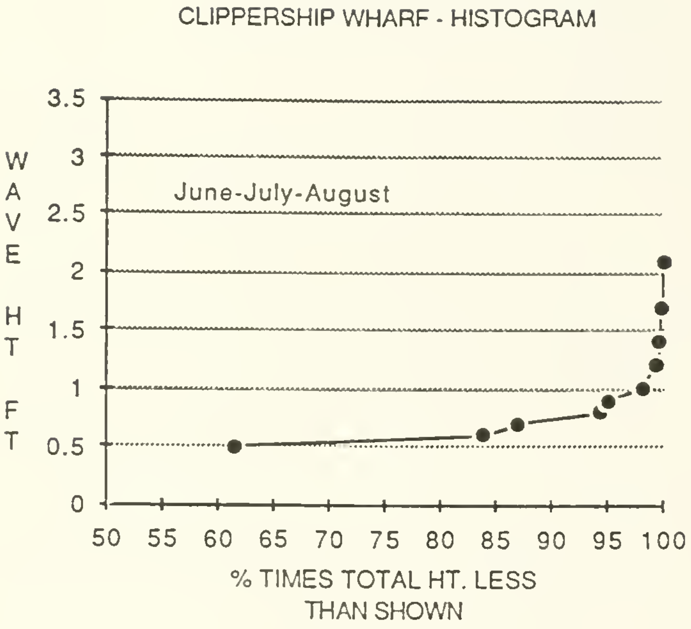


Figure 4.

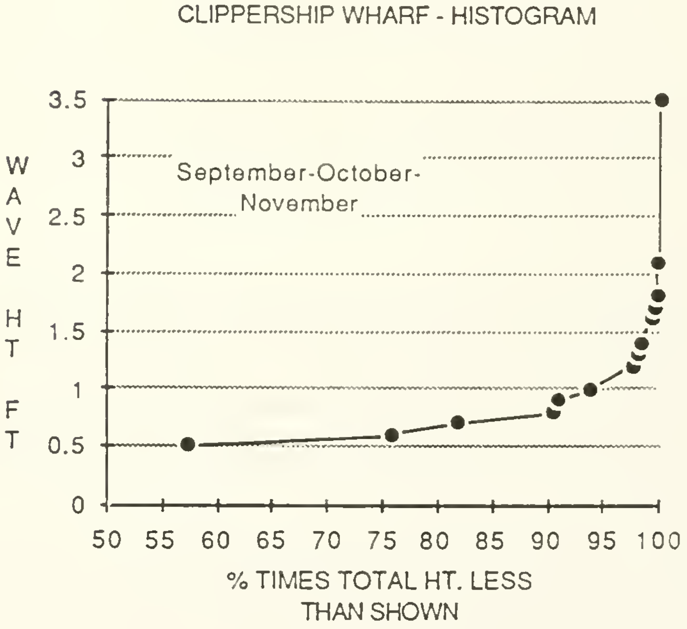


Figure 5.

indicated, as well as greater than that shown.

The histograms provide information on the frequency of occurrence of wave heights and periods during an average year in the vicinity of the marina site. Figure 2 for the period of December-January-February indicates that the maximum wave expected is 2.8 feet in height and will occur less than 0.1 percent of the time. Important waves, with heights greater than 1.5 feet, will occur for at least 3.0 percent of the time, with waves less than 0.5 feet occurring for approximately 52 percent of the time. In general, waves of 0.5 feet or less are not considered to be important waves for the marina. The percentage of occurrence of the waves which are greater than 1.0 feet in height dictates the amount of protection that would be desired for the proposed site. The histogram for March-April-May, Figure 3 , shows the time period lengthening for waves less than 0.5 feet in height to 58 percent, with waves of 1.5 feet occurring less than 1.0 percent of the time through May, while the maximum wave height normally expected drops only to 2.7 feet. The calmer periods of June-July-August, Figure 4, shows continued diminishment in the higher wave height percentages, and the maximum expected wave has dropped to 2.1 feet. Waves of less than 0.5 feet occur more than 61 percent of the time, with waves of 1.5 feet or greater present for only 0.5 percent. September-October-November, Figure 5, shows a return to less calm conditions with the highest wave normally expected at 3.5 feet. Waves greater than 1.5 feet now occur for at least 2.0 percent of the time with the percent occurrence of the 0.5 foot or less waves dropping to 52 percent. On average, during an expanded boating season of March through November, waves greater than 1.0 feet are present only 10 percent of the time.

The relatively low wave conditions for the proposed marina site indicates that only limited wave protection is generally required for most of the time. However, the exception will be when the maximum waves occur during on those several days indicated during each tri-monthly periods. The 2.7 to 3.5 foot waves are large enough, although infrequent, to potentially cause boat and dock damage within the marina if left unattenuated.

A wave period histogram, Figure 6, was also prepared for the boating season of March through November. The histogram shows that normally expected waves will have maximum periods of only 2.5 seconds, and slightly more than 99 percent of the time the waves will have periods no greater than 2.0 seconds. A 1.5 second or less period wave will occur for approximately 95 percent of the time. These findings are significant as they relate to potential wave attenuation by the use of floating breakwater structures. In general, these floating wave attenuators work best on waves with periods of less than 3.0 seconds which is certainly the case for Clippership Wharf.

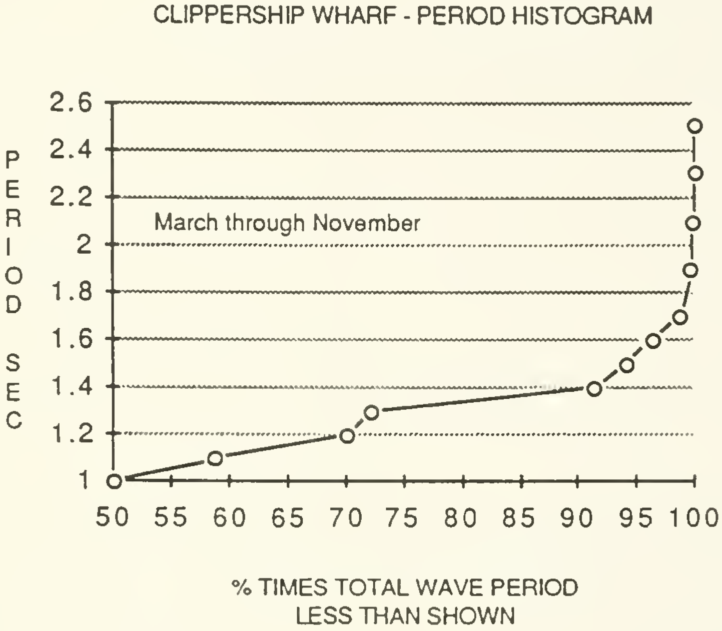


Figure 6.

Extreme Waves

The prediction of the wave heights and periods produced from hurricane or near hurricane winds blowing over shallow water with reduced fetch distances remains to be fully substantiated. Few if any verification comparisons during intense hurricanes have been carried out in the field for the commonly accepted equations given in the Army Corps of Engineers (ACOE), Shore Protection Manual, Vol I, 1984, and used in the analysis herein. The prediction equations used for these short, narrow fetch distances and extremely high winds are known to over predict in terms of wave height. The determination of the proper fetch distance, as well as the value of the air stability factor to be used can greatly influence the wave height predictions with variations as great as 20 percent. However, these ACOE equations remain the best predictors available for the purposes of engineering design along the shore.

As listed above, the 20 year return period will produce maximum wind gusts for greater than one minute of approximately 66 knots at Boston. The 50 year return period will produce maximum wind gusts for greater than one minute of approximately 74 knots at Boston. For the 100 year return period, maximum wind gusts for greater than one minute of approximately 80 knots are predicted. Winds at Boston have a recorded maximum of 74 knots from the southeast. High wind velocities require some time duration in order to build the larger seas. The predictions of at least one minute wind gusts must be extended to an assumption of sustained winds at these higher velocities, at least sustained long enough to develop a fully arisen sea within the limitations of the fetch distances. In a manner similar to FEMA, it is also assumed that the 100 year flood levels are coincident with, and have the same storm condition source as the 100 year wind and waves, producing water levels of 15.0 feet above MLW. Similarly, using the ACOE water level predictions, as amended, the 50 year storm produces water levels of 14.6 above MLW and approximately 14.1 for the 20 year storm.

For the purpose of establishing potential design waves, a wave height and period prediction analysis was carried out for the 20, 50 and 100 year return period winds and water levels. This will then eventually allow decisions to be made as to the cost effectiveness versus risk analysis in the selection of an acceptable design wave for the project. Appendix A also includes the extreme wave height predictions using air stability factors of 0.9, 1.0 and 1.1. This range of air stability factors spans a plus or minus air/water temperature differential of 10 degrees F. It is not possible to predict what the air or water temperatures may be during these high wind events. The practices suggested by he ACOE is that if actual data are not available, the the more conservative air stability factor of 1.1 should be used.

Design criteria stated in the ACOE, Shore Protection Manual, Vol II, 1984, states that the highest 10 percent of the waves should be used as the design waves. However, the Department of the Navy, Naval Facilities Engineering Command, Coastal Protection, Design Manual 26.2, 1982, states that the significant wave heights should form the design waves. As can be seen from the data listed in Appendix A, this presents somewhat of a problem in deciding the design wave height. The highest 10 percent of the waves for an air stability factor of 0.9 is the same as the significant wave height for an air stability factor of 1.1. On one hand, considering hurricanes and the warm air generally associated with them the ACOE guidance of using the highest 10 percent for an air stability factor of 0.9 looks acceptable. On the other hand, their guidance is also that in the absence of temperature information, a 1.1 air stability factor should be used. In that case the U.S. Navy criteria of the significant wave height appears more reasonable than the highest 10 percent of the ACOE. A conservative approach is taken herein and therefore, the predicted significant wave heights for an air stability factor of 1.1 are considered to be the highest waves in this case. One can make arguments for either approach, but fortunately, the same unrefracted design wave emerges as the obvious choice in both cases.

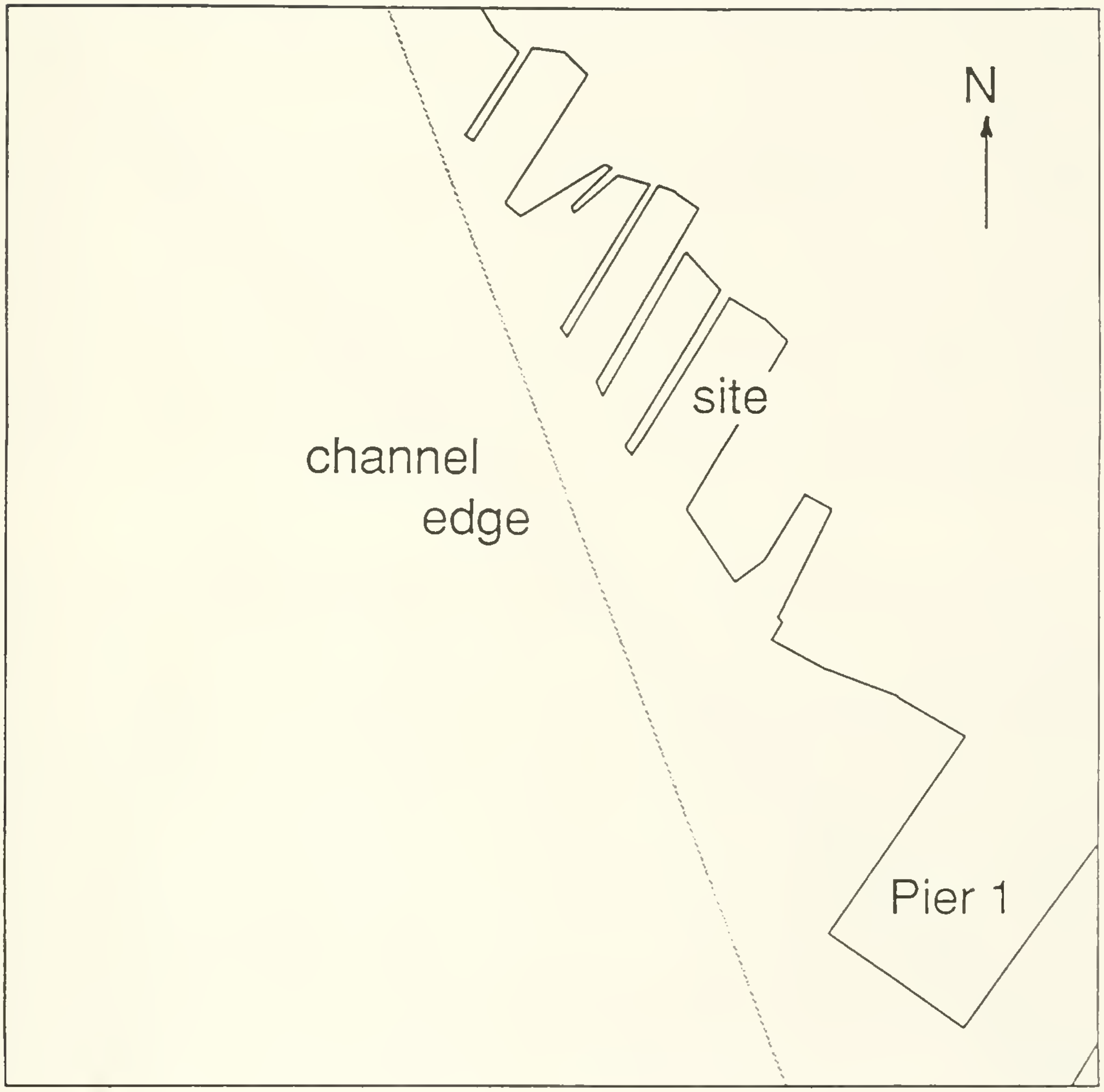
Wave Refraction Analysis

Some travel and bathymetric refraction will occur as the extreme waves approach the shoreline site location. There may be a some reduction in wave heights as well as changes in their arrival directions. This must be considered before the final design waves are established. A wave will undergo bathymetric refraction if it is traveling in water depths which are less than one-half of its wave length. The more shallow the water, the greater will be the effects of refraction. Furthermore, as waves are refracted, a loss of wave height occurs. The greater the amount of refraction, the greater will be the loss in wave height. The site of Clippership Wharf lies very close to the deep water channel of Boston Harbor. Shoaling is rapid as the waves directly approach the pier site and little significant refraction is expected to occur especially with the shorter period waves. Most of the wave energy arriving at the site enters directly with little change. However, those largest waves from the southeast and south-south east do not have direct access to the site. In order to evaluate their arrival impact on the site, their refraction tendencies in the vicinity of Clippership Wharf must be examined. In addition, those waves from the northwest and west-northwest will arrive from a direction more closely parallel with the channel and the shoaling isobaths. They have direct access to the site by passing beneath the pile supported piers lining the shore to the northwest. Even though these waves have relatively short periods, their refractive tendencies must also be examined in order to determine if the shoal water along the shore will affect their trajectories.

To accomplish the refraction analysis, the predicted extreme waves from the southeast, south-southeast, west-northwest, and northwest were refracted from deep water towards the proposed site using the Delaware-Dobson wave refraction program, Environmental Prediction Research Facility, U.S. Navy, Monterey Ca., 1975, and a digital computer. The object of the wave refraction study was to determine the pattern in which these waves arrive in the vicinity of the site. That pattern includes their heights upon arrival, the energy concentration or spreading, and the angle that they make with the shoreline or any proposed or existing structures. The wave refraction program traces each wave orthogonal (a line perpendicular to the crest of the wave in the direction of its travel) from its source to its final breaking point with a continuous monitoring of wave height and wave length alterations along its travel path. Their heights can be altered by the amount of refraction and by bottom friction, with some height increases possible depending on the bottom shoaling conditions. In general, the longer their refracted travel paths and the greater their directional refraction away from their down-wind direction, the lower will be their arrival heights. The spreading of the orthogonal lines indicates wave crest divergence and commensurate wave height diminishment. Convergence of the orthogonals indicates wave height increases. The actual arrival direction and heights of these extreme waves have important implications on the performance and integrity of any proposed structures at the site.

For the purposes of the wave refraction diagrams, the water level was assumed to be an average of plus 14 feet above MLW or 15 feet above Boston City Base for the extreme waves from the southeast and south-southeast. For those extreme waves from the west-northwest and northwest, mean low water depths were used. Extreme wind stress from these westerly directions would be expected to prevent any significant tidal rise, and the use of more shallow water conditions allows a more critical examination of any refraction tendencies of these shorter period waves. In addition, in order to more thoroughly investigate the extreme waves from the southeast and south-southeast, a second set of refraction diagrams were prepared for mean low water conditions. This would be a highly unusual condition, however, due to the wave heights and the damage that they can do, it appears necessary to explore this potential occurrence. Figure 7 shows the computer produced chartlet on which the wave refraction diagrams are plotted. It indicates the general shoreline, pier locations, the channel edge, and the proposed Clippership Wharf marina site. Pier 1, immediately to the southeast is a closely spaced pile supported structure. Wave energy may pass beneath the pier and was therefore considered to offer no wave protection. The next piers to the southeast, Pier 3 and Pier 4 (not shown except

CLIPPERSHIP WHARF



Shoreline Chart

Figure 7.

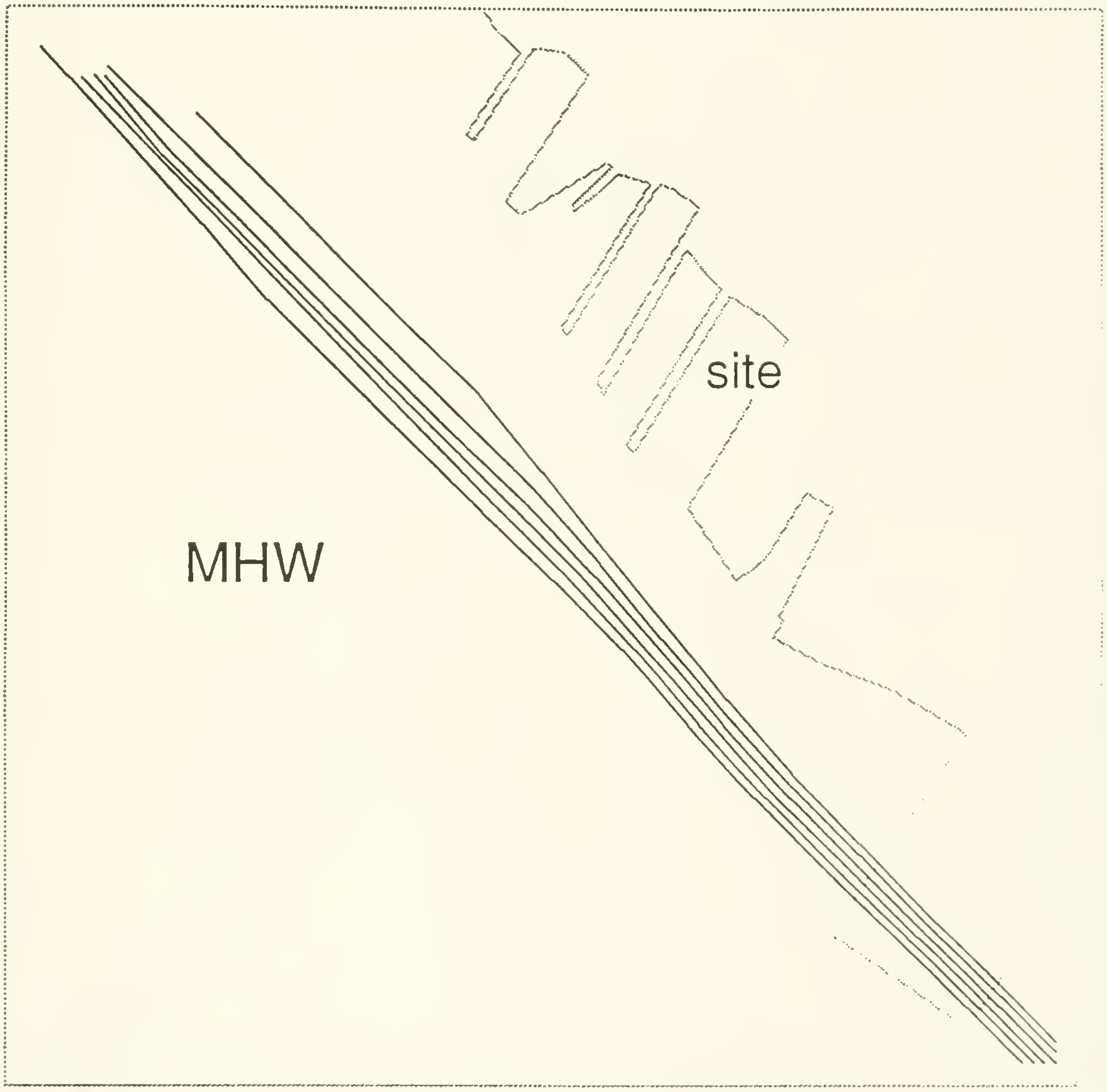
for the corner of pier 3) have granite cores and were therefore considered to afford some wave blocking protection.

A total of 86 wave refraction orthogonals for various periods, water depths, and source directions were followed towards the site. The diagrams prepared are shown as Figures 8 through 13. Figure 8 shows the wave refraction diagram for the extreme waves arriving from the southeast. For the most part these waves will by-pass the site during high water conditions. Lateral spreading of the wave energy along the passing crests will produce short period surge like conditions within the marina, but the extreme wave heights will not be experienced. Even if a low water condition should anomalously occur, Figure 9 for mean low water depths indicates that although significant refraction may take place bringing greater amounts of wave energy into the site, the spread of the orthogonals indicates the waves will reduce in height by approximately 70 percent as they arrive at the outermost part. Under any tidal condition, extreme waves from the southeast, considered to be the largest expected in the harbor, do not appear to pose a severe threat to the site.

Waves from the south-southeast, the next highest waves expected in the harbor, can enter the outermost portion of the marina during high water conditions as shown on Figure 10. Only a slight spreading of the orthogonals appears to take place and essentially these waves will arrive at full height at the entrance of the marina. The situation does not significantly change with anomalously low tide levels due to the shorter period of these waves as shown on Figure 11. They are not strongly controlled by the shallower depths in this case and basically still only affect the entrance area with their full heights. The remaining water area within the site will experience some significant waves all the way to the shoreline due to spreading of the entering wave energy along the crest. The amount of energy spreading and the size of the waves further inside the site would have to be determined by a diffraction analysis, however, it is obvious that these sizeable waves should be blocked if possible before they can gain entrance to the site.

Figures 12 and 13 show extreme wave arrivals from the west-northwest and the northwest respectively. Due to their short periods, little refraction along the shoreline is observed and the waves basically arrive from the directions of the wind that produced them. The shoal water conditions along the pier ends and closer inshore does not produce any wave height reduction

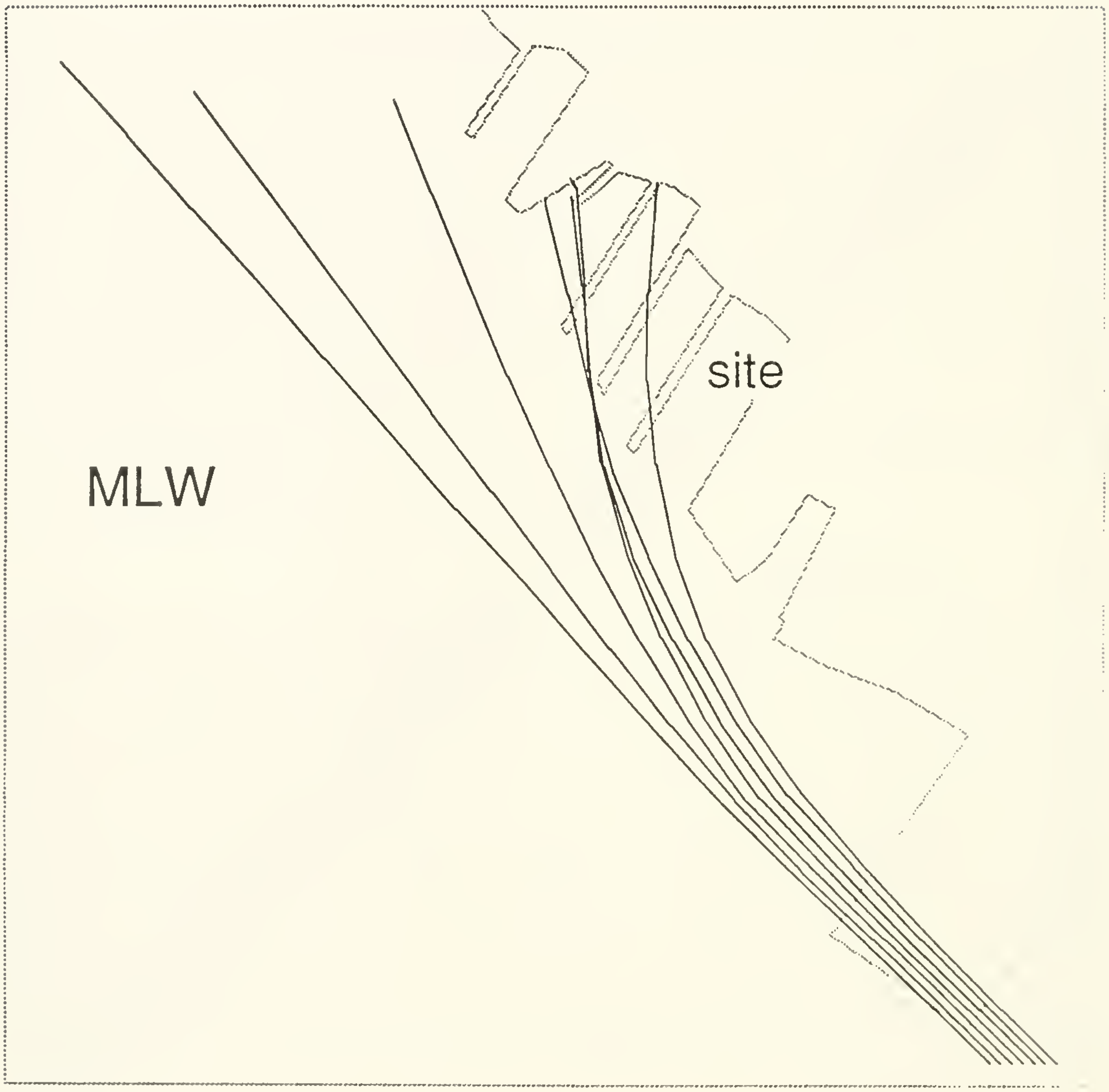
CLIPPERSHIP WHARF REFRACTION



4.0 sec. waves, 135 deg T

Figure 8.

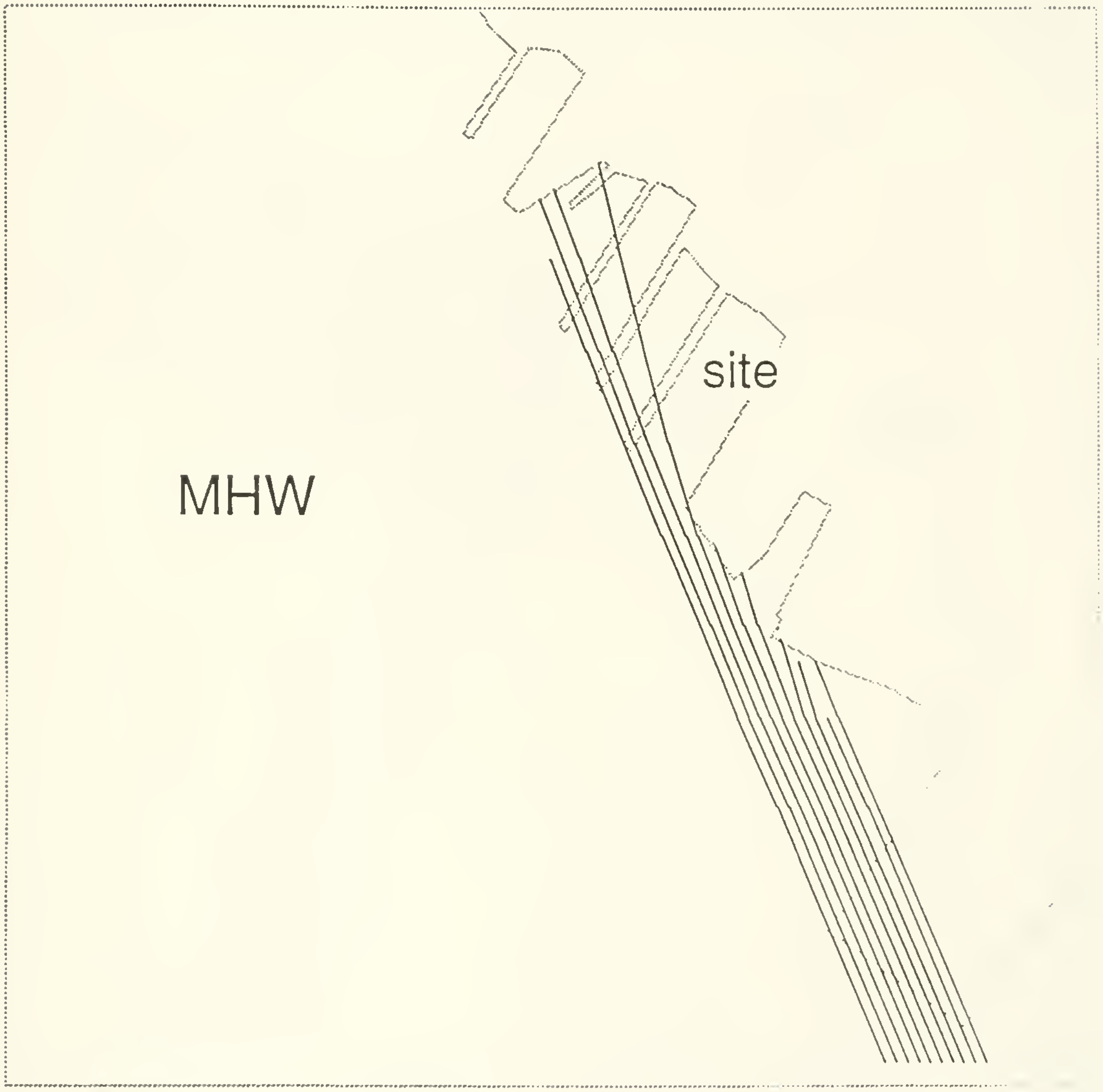
CLIPPERSHIP WHARF REFRACTION



4.0 sec. waves, 135 deg T

Figure 9.

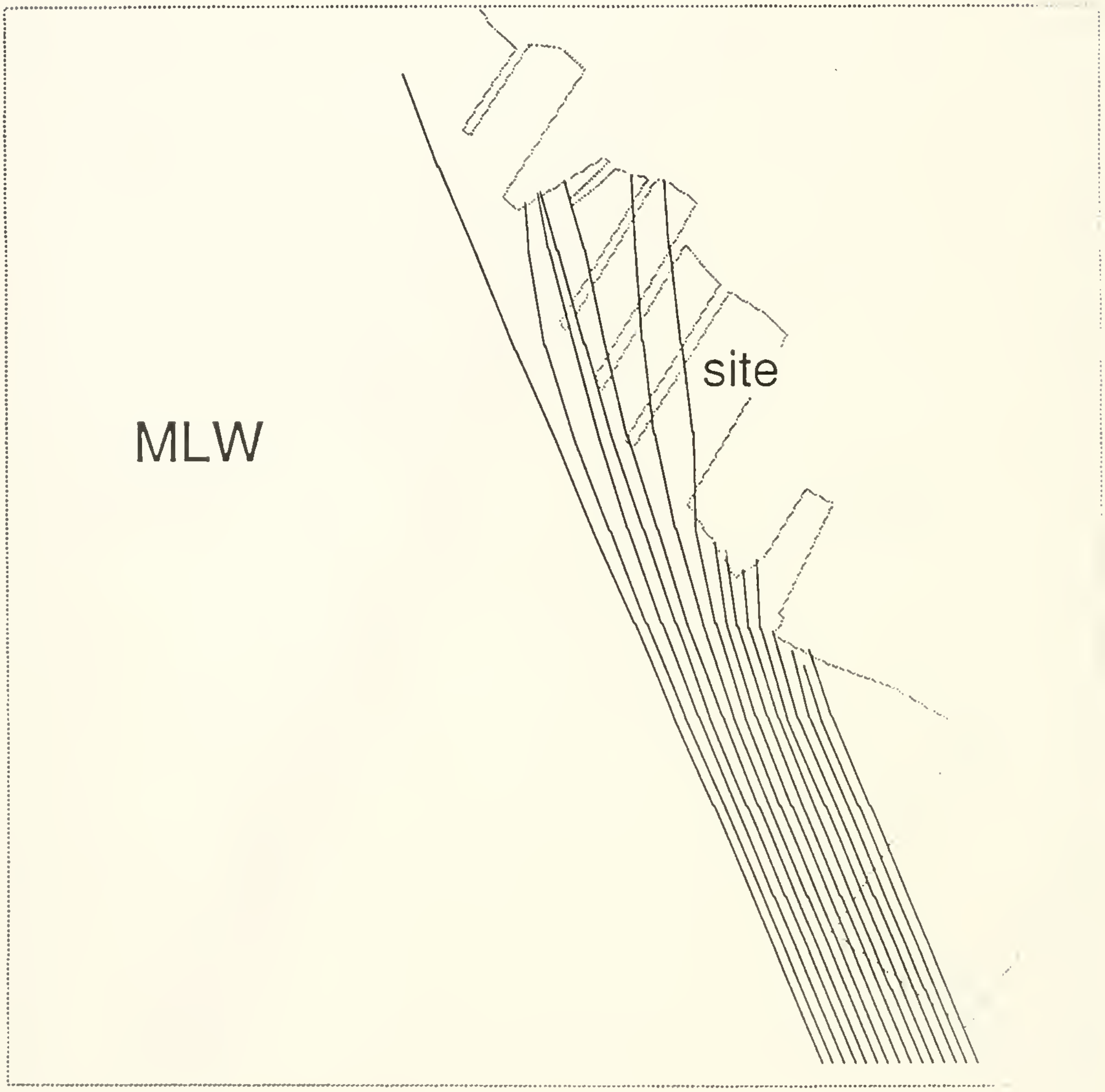
CLIPPERSHIP WHARF REFRACTION



3.2 sec. waves, 158 deg T

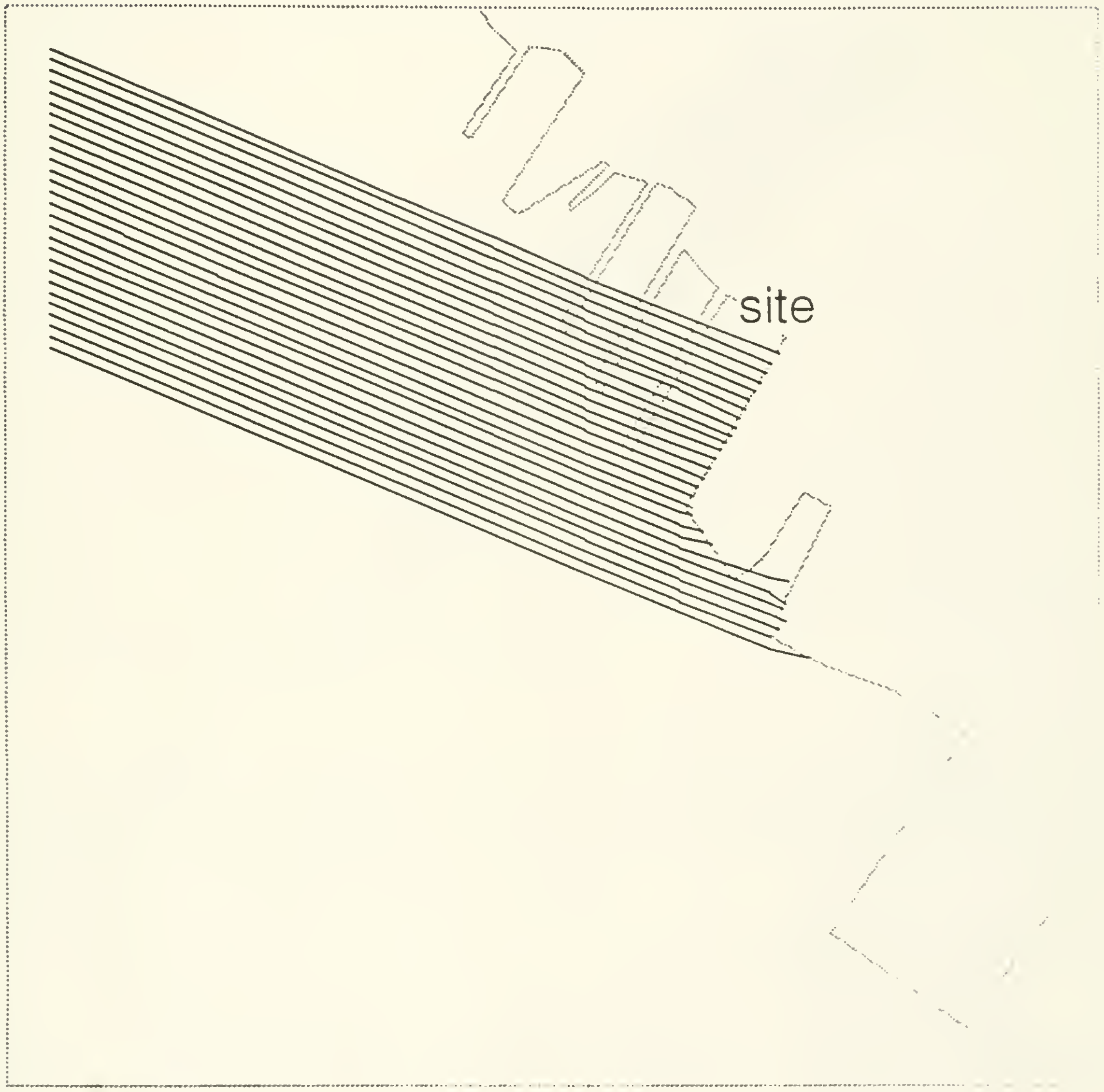
Figure 10.

CLIPPERSHIP WHARF REFRACTION



3.2 sec. waves, 158 deg T

Figure 11.

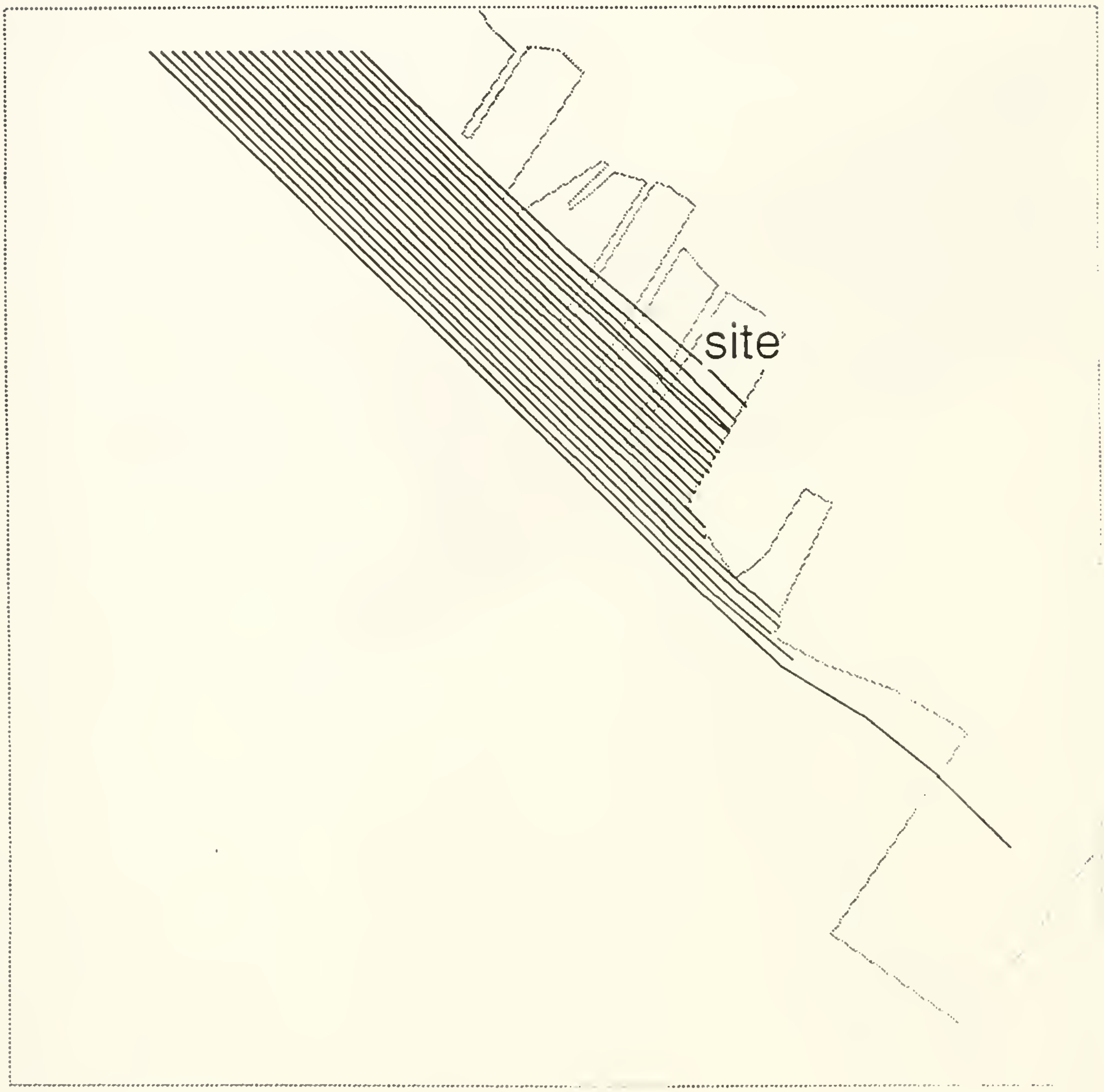


CLIPPERSHIP WHARF REFRACTION

2.6 sec. waves, 293 deg T

Figure 12.

CLIPPERSHIP WHARF REFRACTION



2.5 sec. waves, 315 deg T

Figure 13.

due to refraction and the waves arrive at the site, passing through pile supported piers, with full height. This would also be the situation for waves from the south and southwest sectors which will arrive directly at the site and, in the case of waves from the southwest, travel the full length of the marina.

Design Waves

For the structural design problem, the question of extreme design wave conditions remains. The design wind velocities have been determined for the several return periods with the wind velocities assumed possible from any direction. From the directions of north through east to the east-southeast, protection is afforded by the land areas. The only consideration in that case relates to the wind loading on the structural components of the marina. This loading will be derived from the wind action on the components themselves and from the loading transmitted from the boats moored within the marina. Under certain conditions, this wind loading on high profile boats may be much greater than the wave loading. Careful consideration must be given to this wind loading when the force computations are carried out relative to pile and other structural support design.

After consideration of the above data, the extreme design waves for Clippership Wharf are assumed to be as shown in the table below for the projected wind return periods. The table includes those direct arriving unrefracted waves, as well as those waves from the southeast sector which have undergone bathymetric refraction.

Extreme design waves expected to arrive at the site of Clippership Wharf.

	20 year return		50 year return		100 year return	
Dir. deg. T	Wave ht. in ft.	Period sec.	Wave ht. in ft.	Period sec.	Wave ht. in ft.	Period sec.
135	1.9*	3.8	2.2*	4.0	2.4*	4.1
158	4.5*	3.0	5.2*	3.2	5.7*	3.3
180	3.8	2.7	4.4	2.9	4.8	3.0
203	3.3	2.5	3.8	2.6	4.1	2.7
225	2.5	2.0	2.8	2.1	3.1	2.2
248	2.3	1.9	2.6	2.0	2.9	2.1
270	2.3	1.9	2.6	2.0	2.9	2.1

293	3.3	2.5	3.8	2.6	4.1	2.6
315	2.9	2.3	3.3	2.4	3.7	2.5

* means wave heights at the outer one-third, channel direction, of the marina site.

As can be seen from the above data, very large waves, approximately four foot and greater may enter the marina under a 20 year storm return period scenario. Waves of approximately three feet may flood the entire length of the marina area from the northwest. For the 50 and 100 year return periods, these figures increase to approximately five and four feet, and six and five feet respectively. Some form of extreme wave protection appears to be required.

Conclusions

1. The maximum normal wave climate developed for the site indicates that under average annual wind conditions, the site will experience only short periods that the waves will have important effects on the boats and dock system. However, those few episodes of the higher maximum winds during a normal year, coupled with the open exposure of the proposed site to the northwest, suggests that if a viable marina is to exist at the site, wave attenuation around the perimeter will be required.

2. The site is directly exposed to the south through the northwest. Extreme winds can produced large damaging waves which can enter most parts of the site. In addition, those extreme waves from the south-southeast can reach at least the outermost part of the marina with some of the highest waves generated under a given storm return period scenario. If a marina is to survive these extreme conditions, a considerable amount of wave protection will have to be afforded the site.

BOAT WAKE WAVES

General

Boston Harbor is a busy commercial port. Large tankers, freighters, military ships, tugs, barges, commuter boats, and fireboats are prevalent and create a multiplicity of wake conditions. A detailed water traffic analysis has not been conducted adjacent to the proposed site of the Clippership Wharf. However, the occurrence of wakes is a certainty, the frequency of that occurrence is the unknown at this time.

The location of the east channel edge is approximately 180 feet southwest of the proposed marina entrance location and dock system. The channel edge acts as a limiter to some degree for water traffic of the higher speed vessels passing the marina site due to the shallows just to the north of the site. Most traffic would normally be further offshore in the deeper waters of the channel, however, for the purpose of analysis it will be assumed that any wake producing craft may pass as close as 180 feet from the marina site.

Potential Wake Production

No vessel traffic analysis has been conducted for the area. The exact type, size and frequency of boat and ship passage past the marina site is unknown. There are a number of marinas within Boston's inner harbor which are expected to create significant recreational boat traffic past Clippership Wharf. For the purpose of this analysis, only general speculation on traffic, along with an examination of generic hull types is included.

The medium to large recreational sailboats, considered to be displacement type hulls, are usually capable of motoring at 6 knots and in some cases slightly higher. Their hulls are designed for efficiency at these speeds and significant wakes are usually not created as they travel near the marina site. The medium to large sized recreational power boats which visit the harbor or are home-ported there, are for the most part of the planing hull variety. There are many noted exceptions to this in the form of the "trawler" type displacement hulls. The planing hull type power boats are designed for efficiency at the higher speeds. When these boats are in a full planing mode, only moderate wakes are generally produced. When they are traveling below their planing speed, the hull configurations are such that significant wakes are produced when traveling at speeds of between 6 and 10 knots. The trawler type displacement hulls are generally designed to be most efficient between 6 and 8 knots, which places them in the category of sailboats as far as wake wave production. There is a notable exception to this when these hulls are driven at speeds of 10 knots and greater. Their efficiency drops significantly and their wake waves can become quite large.

The commercial fishing fleet in the harbor are of the displacement hull variety and produce wakes similar to the recreational trawler type hulls. They have powerful engines and are designed for high sea use. They are capable of reaching speeds of 12 knots and in some cases even higher depending on their loads. At these speeds, very damaging wakes can be produced.

The larger, 200 to 700 foot long and greater, freighters, tankers and barges visiting the inner harbor, generally move through the outer harbor at moderate speeds of 10 knots and less. Their hulls are designed for efficiency at these speeds and wake production is minimal.

The tug boats, fire boats, sightseeing boats, and water shuttles prevalent throughout all parts of the harbor often travel in excess of 10 knots. Their powerful engines, coupled with their hull shapes, probably produce the largest wakes within the harbor and would also tend to travel closer to the channel edge. It is believed to be these craft that will provide the greatest wake wave problems for the Clippership Wharf.

Wake Heights and Periods

An analysis was carried out relative to the production of boat wakes derived from displacement hull type vessels. These hull types have the potential for producing the highest wake waves, particularly if operated at the higher speeds. The computer program OSI:WAKE was used to predict the wake wave period, wave length and maximum supportable wave height for given water depths. It is based on wakes being produced as deep water waves, which means that the wave lengths of the traveling wakes are equal to or less than twice the water's depth. These wake waves leave the boat's hull and travel in a direction approximately 35 degrees to the right and left of the boat's course line. Due to the angle of wake departure from the boat's hull, these wakes will arrive at the marina site at an angle and having traveled a greater distance than just the boat's closest point of passage past the site. The computer program OSI:WAKE was operated for water depths of 35 feet, typical channel depths, and boat speeds of up to 15 knots. Figure 14 shows the computer output of the program. Wake periods produced range from 0.8 seconds to 4.2 seconds for the higher speed boats. The program indicates the maximum supportable wave heights, but these are unlikely to occur. The actual wake wave heights that may be produced relates to specific hull designs. For purposes of estimating possible wake wave heights, the data provided by Sorenson, R.M., "Water Waves Produced by Ships", Proceedings American Society of Civil Engineers. WW-2, Vol 99, 1973, are useful:

Water Wake Waves Produced by Various Surface Craft

Vessel type	Length feet	Draft feet	Water depth	Speed knots	Distance fr. Travel	
					100 ft	500 ft
					Height remain ft	
Cabin Cruiser	23	1.7	40	6	0.7	0.4
				10	1.2	0.8
Coast Guard Cutter	40	3.5	38	6	1.0	0.6
				10	1.5	
				14	2.4	
Tug boat	45	6.0	37	6	0.6	0.3
				10	1.5	0.9
Fire boat	100	11.0	39	6	0.4	0.2
				10	1.7	1.0
				14	3.1	2.6
Barge	263	14.0	42	10	1.4	0.7
Tanker	504	28.0	56	14		1.5

From the data shown above, a tug boat traveling north near the east edge of the channel at

DISPLACEMENT VESSEL WAKE PRODUCTION

WAKES PRODUCED WILL TRAVEL IN A DIRECTION + AND - 35.27 DEGREES RELATIVE TO THE BOAT COURSELINE. VALUES SHOWN FOR FROUDE NO. OF GREATER THAN 1 ARE NOT VALID. WAKE WAVE HEIGHTS WILL BE GOVERNED BY HULL DESIGN. MAXIMUM SUPPORTABL WAKE WAVE HEIGHT SHOWN IS FROM STOKES THEORY USING A 1/7 STEEPNESS RATIO OR A WATER DEPTH LIMIT OF 1/1.3. HIGHER W WILL BREAK AND REFORM RESULTING IN LONGER WAVE LENGTHS AND LOWER HEIGHTS.

BOAT SPEED IS SHOWN IN KNOTS, WAVE LENGTHS AND HEIGHT ARE IN FEET, PERIOD IN SECONDS.

BOAT SPEED	WATER DEPTH	FROUDE NUMBER	STERN WAVE LENGTH	WAKE WAVE LENGTH	WAKE WAVE PERIOD	MAX SUPPORTABLE WAVE HEIGHT
3.0	35.0	.15	5.5	3.7	.8	.5
4.0	35.0	.20	9.0	6.0	1.1	.9
5.0	35.0	.25	14.0	9.3	1.3	1.3
6.0	35.0	.30	20.5	13.7	1.6	2.0
7.0	35.0	.35	27.5	18.3	1.9	2.6
8.0	35.0	.40	36.0	24.0	2.2	3.4
9.0	35.0	.45	45.5	30.3	2.4	4.3
10.0	35.0	.50	56.0	37.3	2.7	5.3
11.0	35.0	.55	68.0	45.3	3.0	6.5
12.0	35.0	.60	81.0	54.0	3.2	7.7
13.0	35.0	.65	96.5	64.3	3.5	9.2
14.0	35.0	.70	114.0	76.0	3.9	10.9
15.0	35.0	.75	135.5	90.3	4.2	12.9

Figure 14.

10 knots past the marina site may produce a wake wave as large as 1.0 feet, with a period of 2.7 seconds by the time it travels the intervening 450 feet to the marina. The wake wave will arrive at the entrance to the marina from a direction of 195 degrees true and potentially travel through the marina for almost the entire length of the installation. A fire boat on a similar trackline, passing at a speed of 14 knots may produce a wake wave arriving at the marina as great as 2.6 feet with a period of 3.9 seconds. South bound channel traffic may also pass close to the entrance of the marina site. These wake waves will arrive from a direction of 305 degrees true, and since they will have to travel over a similar distance to the northbound traffic wakes, their arrival heights will be approximately the same. However, in their case, they will arrive at the marina site almost perpendicular to the proposed filled pier structure that forms the southeast perimeter of the marina. This creates a potential for reflection off of the filled pier vertical walls, with commensurate chaotic wave conditions being created within the area of the marina dock system. This same situation is true for any wind driven wave system coming from the west through the northwest direction.

The wake periods on the order of 3 to 4 seconds, and wave heights potentially as large a 2 to 3 feet compare favorably in height with, but have longer periods than, the maximum wind waves that the marina will receive. However, a major difference may be the frequency with which these waves arrive. Heavy commercial and recreational boat traffic may produce many episodes of wake arrival at the marina far in excess of the frequency of occurrence of the larger wind driven waves as shown on the histograms. Wake wave heights and their arrival frequencies may establish the requirement and form the criteria for perimeter protection for Clippership Wharf èven without any consideration for protection from the wind wave climate.

APPENDIX A

WAVE HEIGHT, LENGTH AND PERIOD PREDICTIONS AFTER 1984 VOL 1, ARMY CORPS SPM.
APPLIES AN AIR STABILITY CORRECTION FACTOR OF 1.10 TO THE ASSUMED WIND AT 10 METERS HEIGHT.

WIND VEL KTS	DIR DEG T	AVAIL FETCH	GIVEN DURATION	DUR NEEDED	DEPTH FEET	PERIOD SECONDS	WAVE LEN. FT	HIGH 10% FEET	SIGNIF HT. FT	AVE HT FEET	MOST FREQ HT. FEET	SHALL DEEP
10.	315	.43	6.0	.42	50.0	1.0	5.4	.4	.3	.2	.1	DEEP
16.	315	.43	6.0	.35	50.0	1.3	8.0	.6	.5	.3	.3	DEEP
21.	315	.43	6.0	.31	50.0	1.4	10.1	.9	.7	.4	.4	DEEP
27.	315	.43	6.0	.28	50.0	1.6	12.4	1.2	1.0	.6	.5	DEEP
33.	315	.43	6.0	.26	50.0	1.7	14.6	1.6	1.2	.8	.6	DEEP
40.	315	.43	6.0	.24	50.0	1.8	17.1	2.0	1.6	1.0	.8	DEEP
45.	315	.43	6.0	.23	50.0	1.9	18.9	2.3	1.8	1.1	.9	DEEP
53.	315	.43	6.0	.21	50.0	2.1	21.6	2.8	2.2	1.4	1.1	DEEP
10.	293	.55	6.0	.50	50.0	1.1	6.3	.4	.3	.2	.2	DEEP
16.	293	.55	6.0	.41	50.0	1.4	9.4	.7	.6	.4	.3	DEEP
21.	293	.55	6.0	.37	50.0	1.5	11.8	1.0	.8	.5	.4	DEEP
27.	293	.55	6.0	.33	50.0	1.7	14.5	1.4	1.1	.7	.5	DEEP
33.	293	.55	6.0	.30	50.0	1.9	17.2	1.8	1.4	.9	.7	DEEP
40.	293	.55	6.0	.28	50.0	2.0	20.1	2.2	1.8	1.1	.9	DEEP
10.	270	.27	6.0	.31	50.0	.9	4.0	.3	.2	.1	.1	DEEP
16.	270	.27	6.0	.25	50.0	1.1	5.9	.5	.4	.3	.2	DEEP
21.	270	.27	6.0	.23	50.0	1.2	7.4	.7	.6	.3	.3	DEEP
27.	270	.27	6.0	.21	50.0	1.3	9.2	1.0	.8	.5	.4	DEEP
33.	270	.27	6.0	.19	50.0	1.5	10.8	1.2	1.0	.6	.5	DEEP
40.	270	.27	6.0	.18	50.0	1.6	12.7	1.6	1.2	.8	.6	DEEP
10.	248	.27	6.0	.31	50.0	.9	4.0	.3	.2	.1	.1	DEEP
16.	248	.27	6.0	.25	50.0	1.1	5.9	.5	.4	.3	.2	DEEP
21.	248	.27	6.0	.23	50.0	1.2	7.4	.7	.6	.3	.3	DEEP
27.	248	.27	6.0	.21	50.0	1.3	9.2	1.0	.8	.5	.4	DEEP
33.	248	.27	6.0	.19	50.0	1.5	10.8	1.2	1.0	.6	.5	DEEP
40.	248	.27	6.0	.18	50.0	1.6	12.7	1.6	1.2	.8	.6	DEEP
10.	225	.31	6.0	.34	50.0	.9	4.4	.3	.2	.2	.1	DEEP

16.	225	.31	6.0	.28	50.0	1.1	6.5	.5	.4	.3	.2	DEEP
21.	225	.31	6.0	.25	50.0	1.3	8.1	.8	.6	.4	.3	DEEP
27.	225	.31	6.0	.23	50.0	1.4	10.0	1.0	.8	.5	.4	DEEP
33.	225	.31	6.0	.21	50.0	1.5	11.8	1.3	1.0	.7	.5	DEEP
40.	225	.31	6.0	.19	50.0	1.7	13.9	1.7	1.3	.8	.7	DEEP
10.	203	.55	6.0	.50	50.0	1.1	6.3	.4	.3	.2	.2	DEEP
16.	203	.55	6.0	.41	50.0	1.4	9.4	.7	.6	.4	.3	DEEP
21.	203	.55	6.0	.37	50.0	1.5	11.8	1.0	.8	.5	.4	DEEP
27.	203	.55	6.0	.33	50.0	1.7	14.5	1.4	1.1	.7	.5	DEEP
33.	203	.55	6.0	.30	50.0	1.9	17.2	1.8	1.4	.9	.7	DEEP
40.	203	.55	6.0	.28	50.0	2.0	20.1	2.2	1.8	1.1	.9	DEEP
10.	180	.80	6.0	.64	50.0	1.3	8.0	.5	.4	.2	.2	DEEP
16.	180	.80	6.0	.53	50.0	1.6	12.0	.9	.7	.4	.3	DEEP
21.	180	.80	6.0	.47	50.0	1.7	15.0	1.2	1.0	.6	.5	DEEP
27.	180	.80	6.0	.42	50.0	1.9	18.5	1.7	1.3	.8	.7	DEEP
33.	180	.80	6.0	.39	50.0	2.1	21.8	2.1	1.7	1.0	.8	DEEP
40.	180	.80	6.0	.36	50.0	2.3	25.6	2.7	2.1	1.3	1.1	DEEP
49.	180	.80	6.0	.33	50.0	2.5	30.2	3.5	2.7	1.7	1.4	DEEP

WAVE HEIGHT, LENGTH AND PERIOD PREDICTIONS AFTER 1984 VOL I, ARMY CORPS SPM.
APPLIES AN AIR STABILITY CORRECTION FACTOR OF .90 TO THE ASSUMED WIND AT 10 METERS HEIGHT.

WIND VEL KTS	DIR DEG T	AVAIL FETCH	GIVEN DURATION	DUR NEEDED	DEPTH FEET	PERIOD SECONDS	WAVE LEN. FT	HIGH 10% FEET	SIGNIF HT. FT	AVE HT FEET	MOST FREQ HT. FEET	SHALL DEEP
66.	315	.43	6.0	.21	50.0	2.1	21.9	2.9	2.3	1.4	1.1	DEEP
66.	293	.55	6.0	.25	50.0	2.3	25.7	3.2	2.6	1.6	1.3	DEEP
66.	270	.27	6.0	.15	50.0	1.8	16.2	2.3	1.8	1.1	.9	DEEP
66.	248	.27	6.0	.15	50.0	1.8	16.2	2.3	1.8	1.1	.9	DEEP
66.	225	.31	6.0	.17	50.0	1.9	17.7	2.4	1.9	1.2	1.0	DEEP
66.	203	.55	6.0	.25	50.0	2.3	25.7	3.2	2.6	1.6	1.3	DEEP
66.	180	.75	6.0	.31	50.0	2.5	31.4	3.8	3.0	1.9	1.5	DEEP
66.	157	1.04	6.0	.38	50.0	2.8	38.7	4.5	3.5	2.2	1.8	DEEP
66.	135	2.00	6.0	.59	50.0	3.5	58.4	6.2	4.9	3.0	2.4	DEEP
74.	315	.43	6.0	.20	50.0	2.2	24.1	3.3	2.6	1.6	1.3	DEEP
74.	293	.55	6.0	.24	50.0	2.4	28.2	3.7	2.9	1.8	1.5	DEEP
74.	270	.27	6.0	.15	50.0	1.9	17.8	2.6	2.1	1.3	1.0	DEEP
74.	248	.27	6.0	.15	50.0	1.9	17.8	2.6	2.1	1.3	1.0	DEEP
74.	225	.31	6.0	.16	50.0	2.0	19.5	2.8	2.2	1.4	1.1	DEEP
74.	203	.55	6.0	.24	50.0	2.4	28.2	3.7	2.9	1.8	1.5	DEEP
74.	180	.75	6.0	.29	50.0	2.6	34.5	4.4	3.4	2.1	1.7	DEEP
74.	157	1.04	6.0	.36	50.0	2.9	42.5	5.1	4.0	2.5	2.0	DEEP
74.	135	2.00	6.0	.56	50.0	3.7	64.1	7.1	5.6	3.5	2.8	DEEP
80.	315	.43	6.0	.20	50.0	2.3	25.7	3.6	2.9	1.8	1.4	DEEP
80.	293	.55	6.0	.23	50.0	2.5	30.1	4.1	3.2	2.0	1.6	DEEP
80.	270	.27	6.0	.14	50.0	1.9	19.0	2.9	2.3	1.4	1.1	DEEP
80.	248	.27	6.0	.14	50.0	1.9	19.0	2.9	2.3	1.4	1.1	DEEP
80.	225	.31	6.0	.16	50.0	2.0	20.7	3.1	2.4	1.5	1.2	DEEP
80.	203	.55	6.0	.23	50.0	2.5	30.1	4.1	3.2	2.0	1.6	DEEP
80.	180	.75	6.0	.28	50.0	2.7	36.7	4.8	3.8	2.4	1.9	DEEP
80.	157	1.04	6.0	.35	50.0	3.0	45.3	5.6	4.4	2.8	2.2	DEEP
80.	135	2.00	6.0	.54	50.0	3.8	68.3	7.8	6.2	3.9	3.1	DEEP

WAVE HEIGHT, LENGTH AND PERIOD PREDICTIONS AFTER 1984 VOL I, ARMY CORPS SPM.
APPLIES AN AIR STABILITY CORRECTION FACTOR OF 1.00 TO THE ASSUMED WIND AT 10 METERS HEIGHT.

WIND VEL KTS	DIR DEG T	AVAIL FETCH	GIVEN DURATION	DUR NEEDED	DEPTH FEET	PERIOD SECONDS	WAVE LEN. FT	HIGH 10% FEET	SIGNIF HT. FT	AVE HT FEET	MOST FREQ HT. FEET	SHALL DEEP
66.	315	.43	6.0	.20	50.0	2.2	23.9	3.3	2.6	1.6	1.3	DEEP
66.	293	.55	6.0	.24	50.0	2.4	28.0	3.7	2.9	1.8	1.5	DEEP
66.	270	.27	6.0	.15	50.0	1.9	17.6	2.6	2.0	1.3	1.0	DEEP
66.	248	.27	6.0	.15	50.0	1.9	17.6	2.6	2.0	1.3	1.0	DEEP
66.	225	.31	6.0	.16	50.0	2.0	19.3	2.8	2.2	1.4	1.1	DEEP
66.	203	.55	6.0	.24	50.0	2.4	28.0	3.7	2.9	1.8	1.5	DEEP
66.	180	.75	6.0	.29	50.0	2.6	34.2	4.3	3.4	2.1	1.7	DEEP
66.	157	1.04	6.0	.36	50.0	2.9	42.2	5.1	4.0	2.5	2.0	DEEP
66.	135	2.00	6.0	.56	50.0	3.6	63.6	7.0	5.5	3.5	2.8	DEEP
74.	315	.43	6.0	.19	50.0	2.3	26.2	3.8	3.0	1.8	1.5	DEEP
74.	293	.55	6.0	.23	50.0	2.5	30.8	4.2	3.3	2.1	1.7	DEEP
74.	270	.27	6.0	.14	50.0	2.0	19.4	3.0	2.3	1.5	1.2	DEEP
74.	248	.27	6.0	.14	50.0	2.0	19.4	3.0	2.3	1.5	1.2	DEEP
74.	225	.31	6.0	.16	50.0	2.1	21.2	3.2	2.5	1.6	1.3	DEEP
74.	203	.55	6.0	.23	50.0	2.5	30.8	4.2	3.3	2.1	1.7	DEEP
74.	180	.75	6.0	.28	50.0	2.8	37.6	5.0	3.9	2.4	2.0	DEEP
74.	157	1.04	6.0	.35	50.0	3.1	46.3	5.8	4.6	2.9	2.3	DEEP
74.	135	2.00	6.0	.54	50.0	3.8	69.8	8.1	6.4	4.0	3.2	DEEP
80.	315	.43	6.0	.19	50.0	2.4	28.0	4.1	3.3	2.0	1.6	DEEP
80.	293	.55	6.0	.22	50.0	2.6	32.8	4.7	3.7	2.3	1.8	DEEP
80.	270	.27	6.0	.14	50.0	2.0	20.7	3.3	2.6	1.6	1.3	DEEP
80.	248	.27	6.0	.14	50.0	2.0	20.7	3.3	2.6	1.6	1.3	DEEP
80.	225	.31	6.0	.15	50.0	2.1	22.6	3.5	2.8	1.7	1.4	DEEP
80.	203	.55	6.0	.22	50.0	2.6	32.8	4.7	3.7	2.3	1.8	DEEP
80.	180	.75	6.0	.27	50.0	2.8	40.0	5.5	4.3	2.7	2.1	DEEP
80.	157	1.04	6.0	.34	50.0	3.2	49.3	6.4	5.1	3.2	2.5	DEEP
80.	135	2.00	6.0	.52	50.0	3.9	74.3	8.9	7.0	4.4	3.5	DEEP

WAVE HEIGHT, LENGTH AND PERIOD PREDICTIONS AFTER 1984 VOL 1, ARMY CORPS SPM.
APPLIES AN AIR STABILITY CORRECTION FACTOR OF 1.10 TO THE ASSUMED WIND AT 10 METERS HEIGHT.

WIND VEL KTS	DIR DEG T	AVAIL FETCH	GIVEN DURATION	DUR NEEDED	DEPTH FEET	PERIOD SECONDS	WAVE LEN. FT	HIGH 10% FEET	SIGNIF HT. FT	AVE HT FEET	MOST FREQ HT. FEET	SHALL DEEP
66.	315	.43	6.0	.19	50.0	2.3	25.8	3.7	2.9	1.8	1.4	DEEP
66.	293	.55	6.0	.23	50.0	2.5	30.3	4.1	3.3	2.0	1.6	DEEP
66.	270	.27	6.0	.14	50.0	1.9	19.1	2.9	2.3	1.4	1.1	DEEP
66.	248	.27	6.0	.14	50.0	1.9	19.1	2.9	2.3	1.4	1.1	DEEP
66.	225	.31	6.0	.16	50.0	2.0	20.9	3.1	2.5	1.5	1.2	DEEP
66.	203	.55	6.0	.23	50.0	2.5	30.3	4.1	3.3	2.0	1.6	DEEP
66.	180	.75	6.0	.28	50.0	2.7	37.0	4.8	3.8	2.4	1.9	DEEP
66.	157	1.04	6.0	.35	50.0	3.0	45.6	5.7	4.5	2.8	2.2	DEEP
66.	135	2.00	6.0	.54	50.0	3.8	68.7	7.9	6.2	3.9	3.1	DEEP
74.	315	.43	6.0	.19	50.0	2.4	28.4	4.2	3.3	2.1	1.7	DEEP
74.	293	.55	6.0	.22	50.0	2.6	33.3	4.8	3.8	2.4	1.9	DEEP
74.	270	.27	6.0	.14	50.0	2.0	21.0	3.3	2.6	1.6	1.3	DEEP
74.	248	.27	6.0	.14	50.0	2.0	21.0	3.3	2.6	1.6	1.3	DEEP
74.	225	.31	6.0	.15	50.0	2.1	22.9	3.6	2.8	1.8	1.4	DEEP
74.	203	.55	6.0	.22	50.0	2.6	33.3	4.8	3.8	2.4	1.9	DEEP
74.	180	.75	6.0	.27	50.0	2.9	40.6	5.6	4.4	2.7	2.2	DEEP
74.	157	1.04	6.0	.33	50.0	3.2	50.0	6.6	5.2	3.2	2.6	DEEP
74.	135	2.00	6.0	.52	50.0	4.0	75.4	9.1	7.2	4.5	3.6	DEEP
80.	315	.43	6.0	.18	50.0	2.5	30.2	4.6	3.7	2.3	1.8	DEEP
80.	293	.55	6.0	.21	50.0	2.7	35.5	5.3	4.1	2.6	2.1	DEEP
80.	270	.27	6.0	.13	50.0	2.1	22.3	3.7	2.9	1.8	1.4	DEEP
80.	248	.27	6.0	.13	50.0	2.1	22.3	3.7	2.9	1.8	1.4	DEEP
80.	225	.31	6.0	.14	50.0	2.2	24.4	3.9	3.1	1.9	1.6	DEEP
80.	203	.55	6.0	.21	50.0	2.7	35.5	5.3	4.1	2.6	2.1	DEEP
80.	180	.75	6.0	.26	50.0	3.0	43.3	6.1	4.8	3.0	2.4	DEEP
80.	157	1.04	6.0	.32	50.0	3.3	53.3	7.2	5.7	3.6	2.8	DEEP
80.	135	2.00	6.0	.50	50.0	4.1	80.3	10.0	7.9	4.9	3.9	DEEP

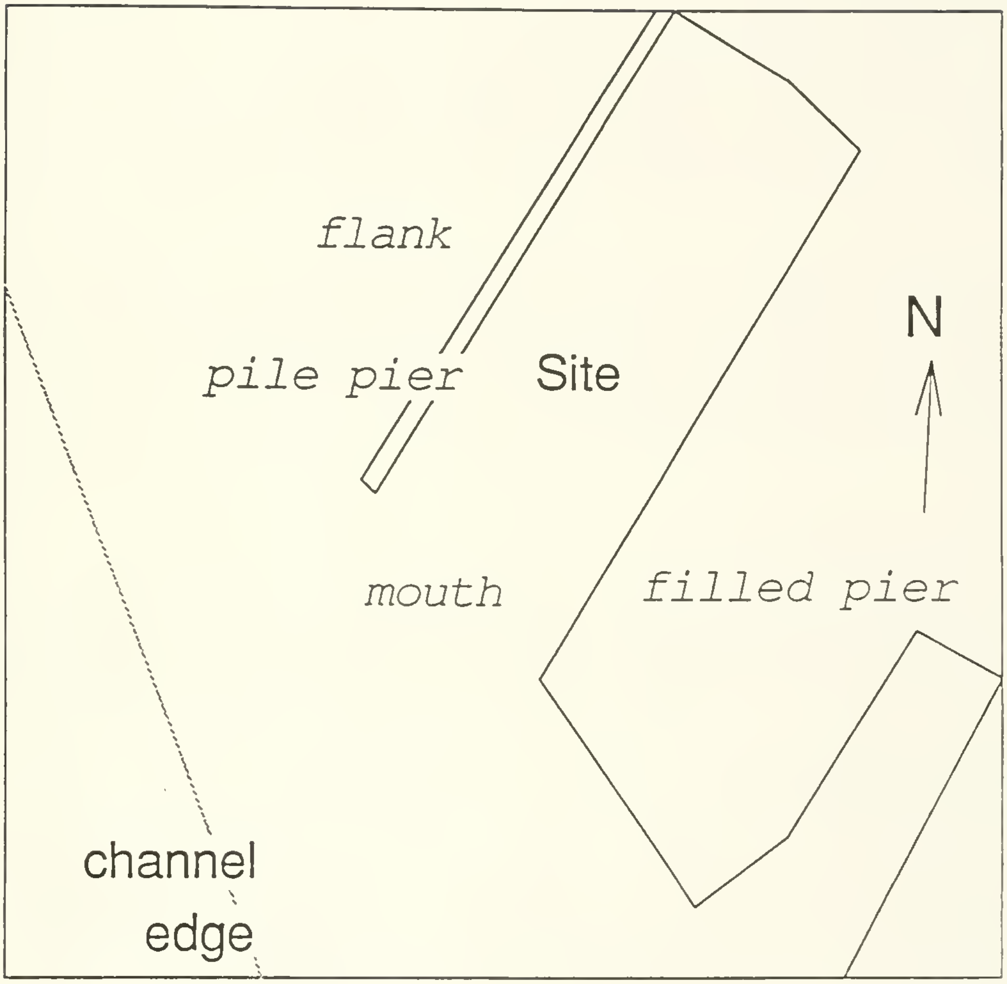
WAVE ATTENUATION FEASIBILITY

General

Based on the conclusions of the report section entitled **WIND WAVE CLIMATE ANALYSIS** it is apparent that some form of wave height amelioration will be required for the comfort and protection of the floating piers and boats within the Clippership Wharf marina. This conclusion is arrived at due to the potential wakes in the area, the maximum annual wave climate that affects the site creating sizeable but infrequent waves, as well as the potential for higher waves created by easterly storms and hurricane conditions. Since the marina site is exposed from the northwest through to the southwest, general non-storm weather conditions can create waves in excess of 0.5 feet in height. These wave heights are excessive for marina boat occupant comfort and must also be considered as necessary for attenuation. The Boston wind data cited in the **WIND WAVE CLIMATE ANALYSIS** section indicates that on an annual basis 6.8 percent of the winds will be in excess of 16 knots from the northwest through to the west-southwest. The wave height predictions shown in the Appendix indicates that waves larger than 0.5 feet will occur during this time period. This translates to 24.82 days or 595.7 hours which is sufficiently long enough to warrant protection.

From the wave analysis carried out, the protection devices to be used by the Clippership Wharf will have to attenuate maximum annual waves of 3.5 feet in height from the south and south-southeast sector, and 2.8 feet in height from the northwest. Extreme waves produced by a 20 year return period storm will require attenuation of 4.5 foot waves from the south-southeast and 3.3 foot waves entering the site directly from the south-southwest and west-northwest. In addition, wake waves from boat traffic traveling near the east edge of the channel, possibly 2.6 feet high will require attenuation. Other wave and wake arrival directions need to be attenuated also as pointed out above, but if the above listed worst waves are handled by some form of perimeter wave attenuation device, those remaining waves will be ameliorated also.

CLIPPERSHIP WHARF



Site Chartlet

Figure 15.

The potential marina water space site is oriented with its long axis parallel to a direction of 210 degrees true and with a length of approximately 530 feet. Its southeastern side will consist of an impermeable filled pier with a solid vertical face. Along the northwestern side, there presently exists the remnants of an open pile supported fixed dock. The width of the potential marina water space is approximately 200 feet. At the head of the marina there will be another vertical bulkhead along the shore. The marina water space is therefore exposed to the arrival of waves at its **mouth** opening and northwestern **flank** as shown in Figure 15. Water depths along the marina's flank to the northwest range from 7 feet MLW at the channel end and shoal to exposed bottom approximately halfway along the flank. Some dredging of the marina space is expected to occur but is undefined at this time. In any event, the shoal water described above as existing along the marina's flank will remain because it extends beyond the present property line. Waves coming from the northwest sector must transit this shoal before arriving in the marina basin. During high tide, water depths along this flank will range from 17 feet at the channel end, to 10 feet at mid flank, and to possibly 4 feet at the shore end. Water depths at the mouth of the marina site will be 20 feet, deepening to approximately 30 feet near the filled pier.

Below is a summary of the worst waves expected to affect the docks and boats at the marina. These are the waves that must be ameliorated for the safety and comfort of the boats and their occupants. All other waves arriving at the site under maximum annual conditions or the extreme 20 year storm return period will either have lesser heights, shorter periods, or arrive at smaller angles of incidence. Therefore, if the below listed worst waves are attenuated, so will those remaining waves.

Arrival Dir degrees T	Wave ht feet	Period seconds	Arrival point	Angle of incidence
158 SSE	4.5	3.0	mouth	20
195 wake	2.6	3.9	mouth	50
203 SSW	3.3	2.5	mouth	58
293 WNW	3.3	2.5	flank	82
305 wake	2.6	3.9	flank	85

Any wave attenuation system to be employed must be able to handle this spectrum of waves in terms of providing for relatively calm waters during normal boating activities and withstand the storm waves during extreme conditions.

Alternative Attenuation Solutions

Due to the all weather protection desired within the confines of the Clippership Wharf marina, a possible solution would be for total enclosure of the marina using sheet piling structures and a narrow opening for boat entry. This is the most effective method for providing wind wave protection under all conditions. Unfortunately, enclosures of this type are not only expensive and unsightly, but also flush poorly and form sediment traps. The design goal for Clippership Wharf is cost effective wave protection and also maintenance of vigorous flushing and circulation.

Towards that end, a possible combination of fixed and floating perimeter protection could be considered. One fixed method which prevents wave energy from entering the marina involves the use of wave boards which could be attached to piles placed along the marina's flank. These wave boards would take the form of vertically attached wooden planks with a pre-determined spacing between them. Their function is to intercept the wave energy in part and reflect it seaward. They will allow a certain portion of the wave energy to enter the Marina area which is dependent on the proportion of space between the boards to the width of the boards. The spacing between the wave boards allows for water circulation into and through the Marina, thereby providing for flushing action and water renewal as the tide level changes.

The major problem with wave boards at this particular site involves two considerations. First, the site is narrow and already closed in on its end and side. Effective wave boards would have to extend well above the level of spring tide heights, and because of this, during low tide conditions the marina would be surrounded on three sides by walls extending upwards to 12 feet above the water. Aesthetically it would be disastrous, and certainly not pleasant for the slip owners. In addition, due to the size of the marina, and the closed in environment, marine growth on the wave boards exposed during low tide would be odoriferous with the smell lingering within the site due to poor air movement. For this reason, the idea of wave boards is discarded at this time.

Floating Wave Attenuators

One alternative method for wave attenuation and protection would be by the use of floating wave attenuation devices. Floating wave attenuators, i.e. floating breakwaters, come in a variety of shapes, sizes, and material. These systems are available from various manufacturers with most any desired widths, drafts and lengths. Wider sections are generally more effective wave attenuators. The floating breakwater systems offer the attractiveness of providing wave protection and allowing free water and bottom sediment movement for unrestricted flushing of the marina waters. In addition they can serve as dockage space except during storm conditions. Their major drawback relates to their inability to be effective on longer period waves, particularly storm waves. Waves with 3.0 second periods generally represent the longest wave periods which will be significantly attenuated by commercially available floating breakwaters. Longer wave periods, up to 4.0 seconds, are attenuated much less with little noticeable attenuation of waves with periods of greater than 4.0 seconds.

The angle of arrival of the wave also plays a significant role in the ability of the breakwater to attenuate waves. The smaller the angle of incidence, the greater the effective width of the breakwater appears to the arriving wave and therefore the more effective the attenuation. Floating breakwaters can be considered as acceptable for wave protection for this site due to the fact that some of the largest wind waves generally expected have periods short enough, 3.0 seconds or less, to fit within the operational limits of floating breakwaters. Unfortunately the lower height storm produced ocean surge with periods of possibly 10 seconds, will not be affected by a floating breakwater. The breakwater will appear to be transparent to these waves and the degree of problems created within the marina area will have to be examined. In addition, extreme wake conditions postulated as emanating from the close passage of high speed boats, will produce wake waves with periods as great as 3.9 seconds. Waves with this length of period will only be marginally affected by most floating devices, and therefore a careful analysis and evaluation is called for.

Floating breakwaters are available in the form of wooden decks with plastic or metal baffles and floats, or concrete covered foam billets. Their effectiveness is usually tied to their mass and size. The concrete systems are widely used products. They are produced in various lengths and usually have widths of approximately eight feet. Multiple sections can be attached in a parallel manner to provide for even wider sections, which significantly improve their performance. They are usually approximately 3.0 feet thick with designed drafts of 1.3 to 1.5 feet. They must be installed in water depths that will not allow them to come in contact with the bottom under the most extreme wave conditions or cracking and structural failure will result. These breakwaters have some limitations on their use due to the extreme waves that they may be subjected to. Most manufactures claim a three foot wave as the maximum to be tolerated, and in some cases up to a five foot wave. Experience in the marine environment indicates that the concrete systems have not been highly successful, particularly after the examination of the results of hurricane Gloria, September, 1985. In southern Connecticut, and in the region of greater Boston Harbor, some of these floating systems broke apart.

Other breakwater products can tolerate greater wave fields but can also be less effective or very costly. It is a growing field with new developments occurring relatively quickly. Site protection for the proposed Clippership Wharf is analyzed herein, in the light of reasonable generic requirements for a breakwater with an actual product to be contrasted with these requirements at a later date after product availability has been carefully surveyed.

Floating breakwaters must possess certain minimum dimensional characteristics of width, draft, mass and movement restraint in order to provide wave protection. Basically, the wider, deeper and greater the mass, the more effective will be their operation. The following analysis was carried out using proprietary computer programs designed to predict the wave attenuation characteristics of floating structures.

Figure 16 is a computer analysis of the performance of a generic floating surface breakwater section. The analysis was performed for widths of 8, 12, 16, and 20 feet in order to show the improvement in their attenuation characteristics as the width is increased. It was assumed that the breakwater was a surface constraint on the water and without draft. Water depths of 10 and 20 feet were assumed as representative of the water depths at the Clippership Wharf. It was further assumed that the breakwater was pile restrained and of sufficient mass so as to prevent movement in either the vertical or horizontal. The performance of floating breakwaters is directly related to the wave periods that they will be exposed to. Figure 16 shows performance characteristics in terms of the percentage of the original wave height remaining, after passing the breakwater, versus the wave period. As can be seen, the breakwater's performance improves with increasing width and falls off as the wave periods increase to 5.0 seconds.

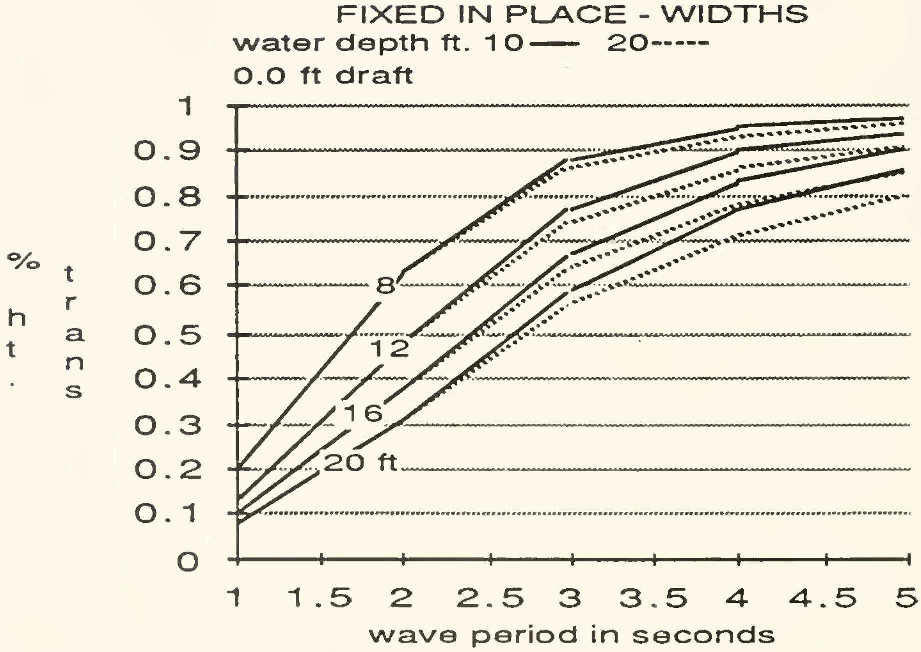


Figure 16.

Contrasting this data with the wave period histogram of Figure 6, some understanding of the possible performance of a floating breakwater at the Clippership Wharf site can be gained. Figure 6 indicates that during 100 percent of the time, the wave periods present during a normal boating season will have periods of 2.5 seconds or less. For example, with a 16 foot wide breakwater section, intercepting arriving waves at a 90 degree angle, provides wave attenuation down to approximately 53 percent of the 3.5 foot high waves expected to exist within that period range. The extreme storm waves will have periods of up to 3.0 seconds for the largest waves and potentially 3.8 seconds for the refracted lower wave heights and 3.9 seconds for the largest wake waves. Attenuation of these waves reduces them to 68 and 78 percent of their original heights respectively. Figure 16 also shows the effects of water depth on the wave attenuation characteristics of the breakwater. Between the 10 and 20 foot water depths performance generally degrades less than 5 percent. If the waves were to arrive at an angle of 45 degrees with the face of the breakwater, attenuation improves. Figure 17 shows the attenuation effects with a 16 foot wide breakwater receiving the waves at an angle of 45 degrees. In this situation, the attenuation for the 3.0 second wave is improved down to 53 percent, and to 69 percent for the 3.8, and 3.9 second waves.

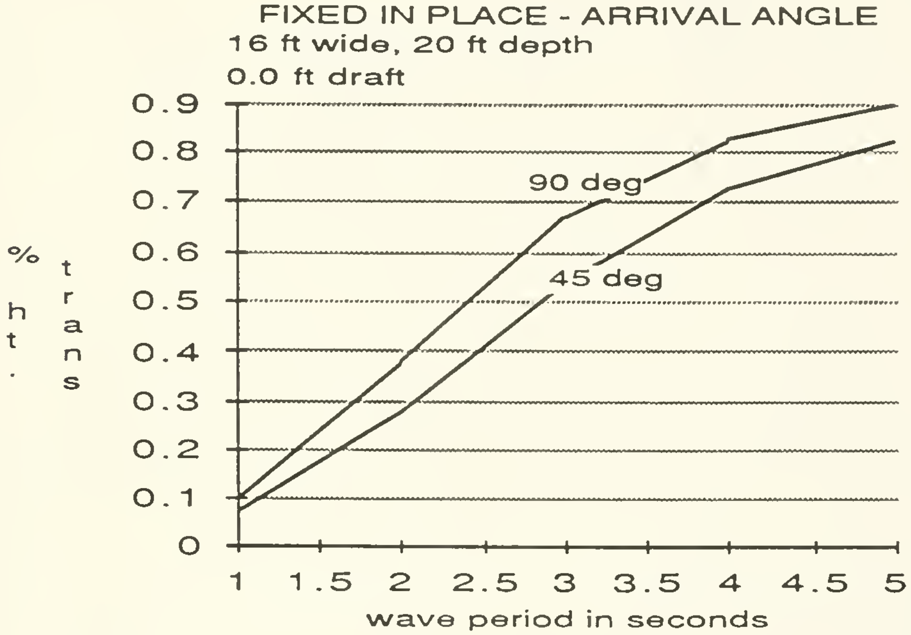


Figure 17.

A second computer program was used to examine the effects of breakwater draft on the wave regime at Clippership Wharf. Figure 18 shows the effects of a constrained barrier with 2 to 6 foot drafts, for water depths of 10 and 20 feet and for 3 foot high waves with 2 to 4 second periods. Improvement in wave attenuation is considerable for the shorter, 2 second waves as the draft is increased, while improvement is less dramatic for the 4 second waves. With a 4 foot draft, a 3 second wave is attenuated down to 55 percent, while the 4 second wave is attenuated to only 63 percent in 20 feet of water, and in 10 feet of water results in even less attenuation. No attenuation improvement can be expected from decreasing the angle of incidence, as it does for breakwater width, since the principle of attenuation in the variable draft case is simple wave blocking.

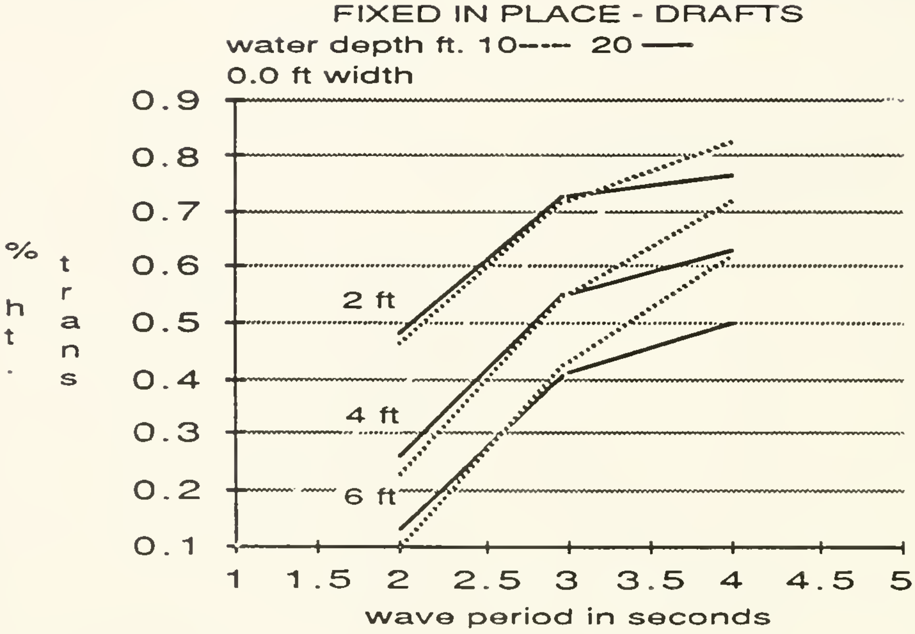


Figure 18.

If the effects of width and draft are combined the attenuation results are significantly increased. From all of the above examples, it becomes apparent that the wider and deeper the floating wave attenuator is, the better wave protection can be provided. The combination of various drafts and widths, which translate into dollar costs, must be contrasted with the actual wave heights, periods, incident arrival angles, and the depth of water. Three to four choices for any of these six variables results in different wave attenuation characteristics numbering in excess of 200 possible scenarios and would not be a practical analysis to carry out at this time. However, as shown above, site specific data can be used to describe the degree of protection Clippership Wharf would receive by selecting a specific attenuation device and positioning it either along the site's flank or at its mouth. Either situation then dictates the specific characteristics of those worst waves that must be attenuated. For the purpose of general cost estimates, an example of a 16 foot wide, 4 foot draft, rigidly supported floating wave attenuator, positioned either along the flank or mouth of the site, during the occurrence of a mean tide is shown below:

Attenuation potential for Clippership Wharf

Arrival Dir degrees T	Wave ht feet	Period seconds	Arrival point	Angle of incidence	Remaining wave ht.
158 SSE	4.5	3.0	mouth	20	0.7
195 wake	2.6	3.9	mouth	50	1.4
203 SSW	3.3	2.5	mouth	58	0.7
293 WNW	3.3	2.5	flank	82	1.0
305 wake	2.6	3.9	flank	85	1.5

Discussion

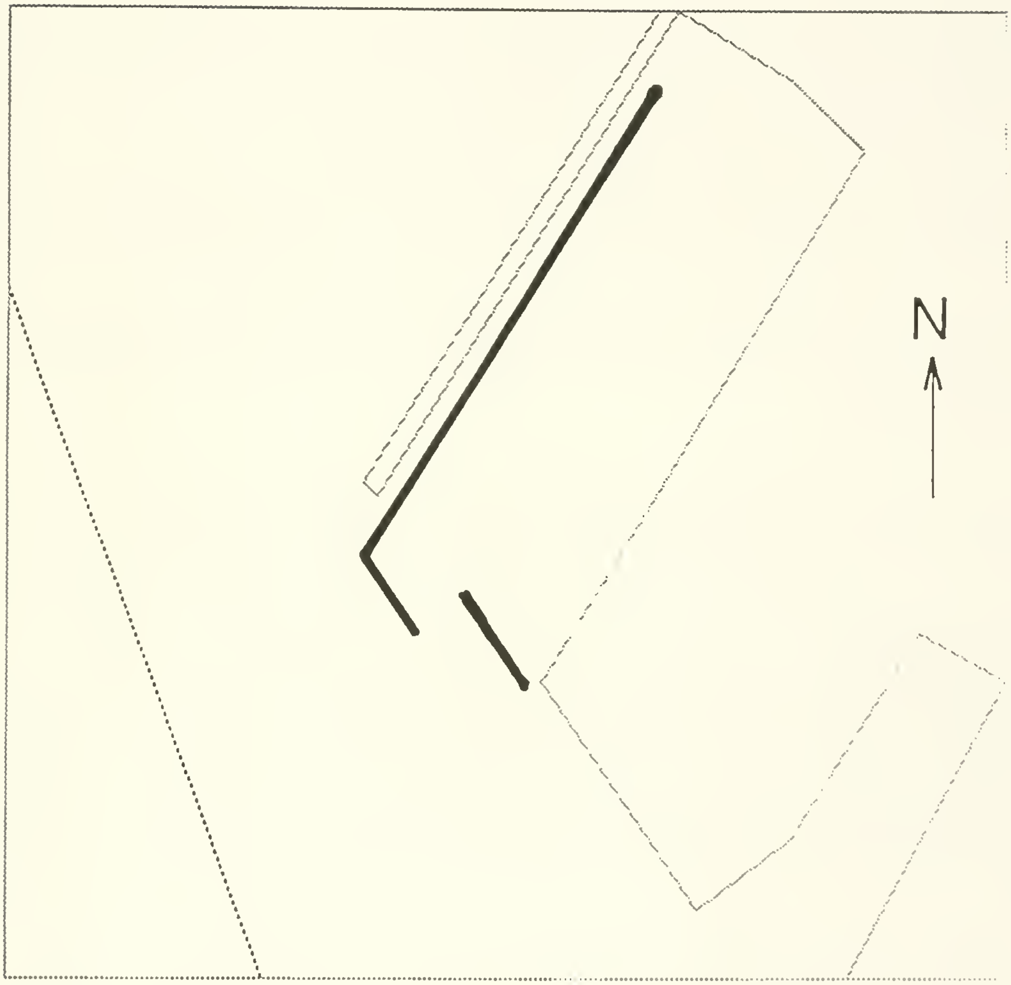
As can be seen in the table above, the highest extreme 4.5 foot wind produced waves are reduced to just under one foot. This significant reduction is partly caused by the wave's small arrival angle at the breakwater. Other important wind waves are also reduced to less dangerous and damaging sizes. However, the maximum wake waves may still cause some problems within the marina. The frequency of occurrence of these wakes has yet to be determined. At this point, their effects have been calculated, but the reality of their existence remains a question. Speed regulation within the harbor would reduce their intensity, but significant boat traffic near the eastern edge of the channel would create a nagging problem.

It must be emphasized that the above analysis gives the most optimistic theoretical expectations for a floating breakwater of the specified design. An actual product, designed as described above, along with the realities of movement with piled supports may differ in performance. It appears that the device used in the example above would be satisfactory at both the flank and the mouth of the marina site. It could make the site into a viable marina provided there is an acceptance of the maximum postulated wake waves. Due to the shoal water along the shoreward half of the marina's flank, as well as the near shore protection afforded from the waves especially during the lower tidal height periods, a floating breakwater in that area could have a draft of approximately 2 feet and still be reasonably successful as an attenuator. A specific analysis will have to be performed on any suggested product.

Recommendations

It appears that some form of wave attenuation is required at the proposed Clippership Wharf marina site. The suggested floating wave attenuator of a similar design as described above will produce a viable, safe and relatively comfortable marina. A suggested arrangement for such a device is shown on Figure 19. The arrangement shows an overlapping breakwater entrance which appears necessary due to the arrival of ambient as well as storm waves at its mouth. The exact final configuration can be adjusted to compensate for shoaling water depths, however, the need for this wave attenuation protection across the mouth and along the flank must be satisfied in a manner similar to that shown. Furthermore, the site will remain exposed to the ambient wind systems from the northwest through to the southwest. This must be accepted by the patrons, with the expectation of the attenuation of the wind produced waves but no shelter from the wind itself.

CLIPPERSHIP WHARF



Site Chartlet

Figure 19. Possible arrangement of floating breakwaters.

PIER DESIGN FOR COMPATIBILITY

This response is to the question of designing the project pier and bulkhead to accommodate a variety of vessels to ensure compatibility with other water transportation sites. A joint project by the Boston Redevelopment Authority and the City of Boston Transportation Department is currently underway to develop prototype guidelines for water shuttle transportation facilities within the Harbor. At this time the study report is not available to the public. The current state of the water transportation issue in the Harbor is unclear, however, the operators of the shuttle boats appear to be opting for small (35 to 50 feet) vessels rather than larger commuter type vessels in evidence when water shuttle operations commenced. The ultimate vessels have yet to be conceived. At this time we are planning dockage facilities that may accommodate vessels in the range of 30 to 65 feet in length and perhaps longer with vessel overhang on the dock. The proposed dockage system, being a floating dock design, provides for easy modification should the state of the art in dockage design dictate design modification prior to construction.

The Clippership Wharf site has considerable restriction with regard to available water depth and exposure to allow universal siting of dockage facilities. The development also intends to site the water shuttle facility to allow good access from the landside to make the system a viable transportation option. The best site along the waterfront may not be the best site for accessing people. It is the intent of the project to maximize compatibility with other water transportation systems and landside transportation systems to warrant the investment in the shuttle dock facility. The Clippership Wharf project is also considerate of other potential area development and the advancing state of the art in Harbor water transportation facilities and intends to avail itself of the latest thinking during the final design stages of the project.

A combination of concepts must be input into the design of water shuttle dockage facilities. The size of vessel is important especially the parameter of vessel freeboard which must mate with the floating dock deck. This parameter is difficult to define in the current round of shuttle vessel design. Allied to the freeboard question is the effect of dock height on access gangways during high tidal levels. A high freeboard float may compromise gangway access to the float at high water levels. Gangway length and handicapped access questions also must be resolved around freeboard and deck level criteria. Mooring piles or other dock restraints must also be considered in terms of float and water elevation. The proposed water shuttle dock can not be all things to all people. The nature of maritime activities requires compromise to accommodate differing vessels and tidal elevations. The Clippership Wharf water shuttle dockage facility will be designed (final design) to function for that range of water shuttle vessels in operation at the time and currently proposed. Future changes in vessel characteristics will may require dock retrofitting. In so far as possible the shuttle docks will be designed to accommodate as wide a range of vessels as possible without compromising the intent of the shuttle facility.

MARINA STORM OPERATIONS

As discussed in the report sections on "Wave, Wake and Attenuation Analysis", Clippership Wharf is subject to impact from storm action. Prudent marina operation will require attention to preparation for storm events in the form of notifying boat owners, moving and securing boats, securing all loose materials, and implementing other portions of a storm management plan. Timely action will ensure proper protection of boats berthed at Clippership Wharf. The recommended actions are compatible with standard operating procedures of any properly operated marina facility in the Harbor.

Marina Storm Management Plan

1. Marina personnel will constantly monitor weather conditions and advise the Marina Manager of any report or observed conditions that indicate the potential for development of storm conditions which may impact the Clippership Wharf Marina.

2. During any storm condition, all marina personnel will wear personal flotation devices (PFDs).

3. Preparation for storm events will be categorized by potential wind velocity.

STORM CONDITION 1: Expected winds to 40 mph

All marina tenants already at the marina will be advised of expected storm conditions. Storm warning advisories will be posted in conspicuous places in the marina; ie: heads, marina gates and marina office. All berthed vessels will be checked for proper tie up and sufficient mooring lines. inappropriate size lines or lines in poor condition will be replaced. Marina float mooring guides will be observed to assure full and free movement during storm conditions. Loose materials on the docks will be secured. Marina personnel will be prepared to render any assistance required to incoming vessels.

STORM CONDITION 2: Expected winds in excess of 40 mph
All items in Storm Condition 1 will be implemented. Only authorized personnel will be allowed on the floats. Project security will be advised and requested be keep all spectators away from the marina area. If evacuation of the marina becomes necessary only the marina manager will give that order.

STORM CONDITION 3: Expected winds of Hurricane strength

Commence Hurricane Check List.

A. Utilize all available staff to call and alert customers to impending hurricane conditions.

B. Verify that all precautions of Storm Condition 1 and 2 have been implemented.

C. Place additional lines on floats and secure to main pier and other tie-off locations.

D. Test all emergency equipment: bilge pumps, electric generators, emergency lighting, etc.

E. Move all marina vehicles and loose equipment to high ground or secure storage.

F. Advise security that only authorized personnel are allowed in marina area.

G. Distribute portable hand held radios and extra batteries.

CUSTOMER NOTIFICATION ALERT

Mr./Ms____________. The Clippership Wharf Marina has been alerted to impending hurricane conditions. The marina has begun instituting its hurricane preparations plan. As soon as possible you are required to assure your vessel is secure and to remove all possible wind catching appurtenances. You should be prepared to remove all sails, canvas covers and bimini tops and store below decks. Remove all dinghies, surfboards and other loose gear. Your vessel should be secured with adequate size mooring lines; bow, stern and spring lines leading fore and aft. All vessels should be facing seaward. The marina manager will be available to inspect your vessel and assist you prior to the storms arrival. All dockside utility connections will be disconnected and stored on board. You should not plan on staying aboard your vessel. If staying aboard becomes necessary, it will only be allowed with the consent of the marina manager. You will be required to monitor Channel 71 and respond to all instructions from the marina personnel. If you elect to move your vessel from the marina, insure that space is available at your destination. ALL PREPARATIONS ARE TO BE COMPLETED BEFORE THE STORMS ARRIVAL. NO VESSEL MOVEMENT OR WORK ON BOATS WILL BE ALLOWED DURING THE STORM.

EMERGENCY TELEPHONE NUMBERS

Boston Harbor Police -	242-6096	242-6097
City of Boston Police -	911	
Fire Department -	725-2880	
Coast Guard -	565-9000	

AFTER THE STORM

When the storm has passed , marina personnel shall made an immediate inventory of all vessels and marina property. All damage shall be noted and if possible photographs taken. Customers shall be notified as appropriate.

POSSIBLE LOCATIONS OF REFUGE (Figure 1)

Hewitts Cove Marina - 349 Lincoln Street, Hingham, MA 02043 (617) 749-6647
Haul-out -35 tons, Space available depending on conditions

Marina Bay - 542 E. Squantum St. N. Quincy, MA 02171 (617) 328-0600
Haul-out -50 tons, Space available depends on conditions

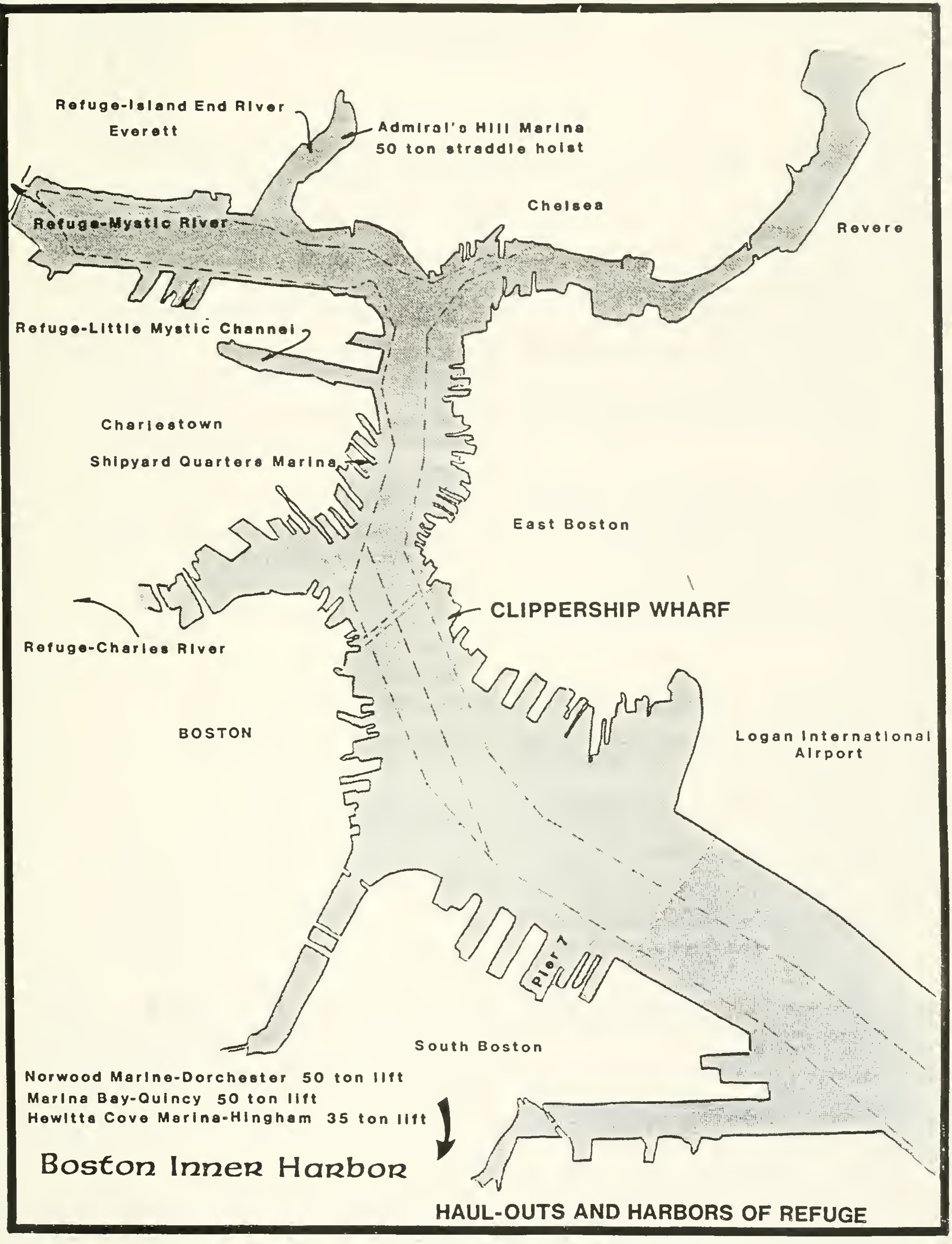

Refuge-Island End River
Everett
Admiral's Hill Marina
50 ton straddle hoist
Refuge-Mystic River
Chelsea
Revere
Refuge-Little Mystic Channel
Charlestown
Shipyard Quarters Marina
East Boston
CLIPPERSHIP WHARF
Refuge-Charles River
BOSTON
Logan International Airport
Pier 7
South Boston
Norwood Marine-Dorchester 50 ton lift
Marina Bay-Quincy 50 ton lift
Hewitts Cove Marina-Hingham 35 ton lift
Boston Inner Harbor
HAUL-OUTS AND HARBORS OF REFUGE

FIGURE 1

Pier 7 - 290 Northern Ave., S. Boston, MA 02210 (617) 542-7770
500 ton floating dock, 1 vessel only, will accept
vessels in water depending on conditions

Shipyard Quarters Marina - Charlestown Navy Yard, Charlestown, MA
(617) 242-2020, no haul-out facilities, will accept
vessels in water if space available.

Admiral's Hill Marina - 1000 Justin Drive, Chelsea, MA 02150 (617) 889-4002
Haul-out - 50 tons, will accept if space available

Norwood Marine - 24 Ericsson St., Dorchester, MA (617) 288-1000
Haul-out - 50 tons, will accept if space available

Other areas of refuge include; Charles River, Mystic River, Little Mystic (for vessels that can pass under the Chelsea Street Bridge) and the Island End River.

COMMERCIAL MARITIME TRAFFIC

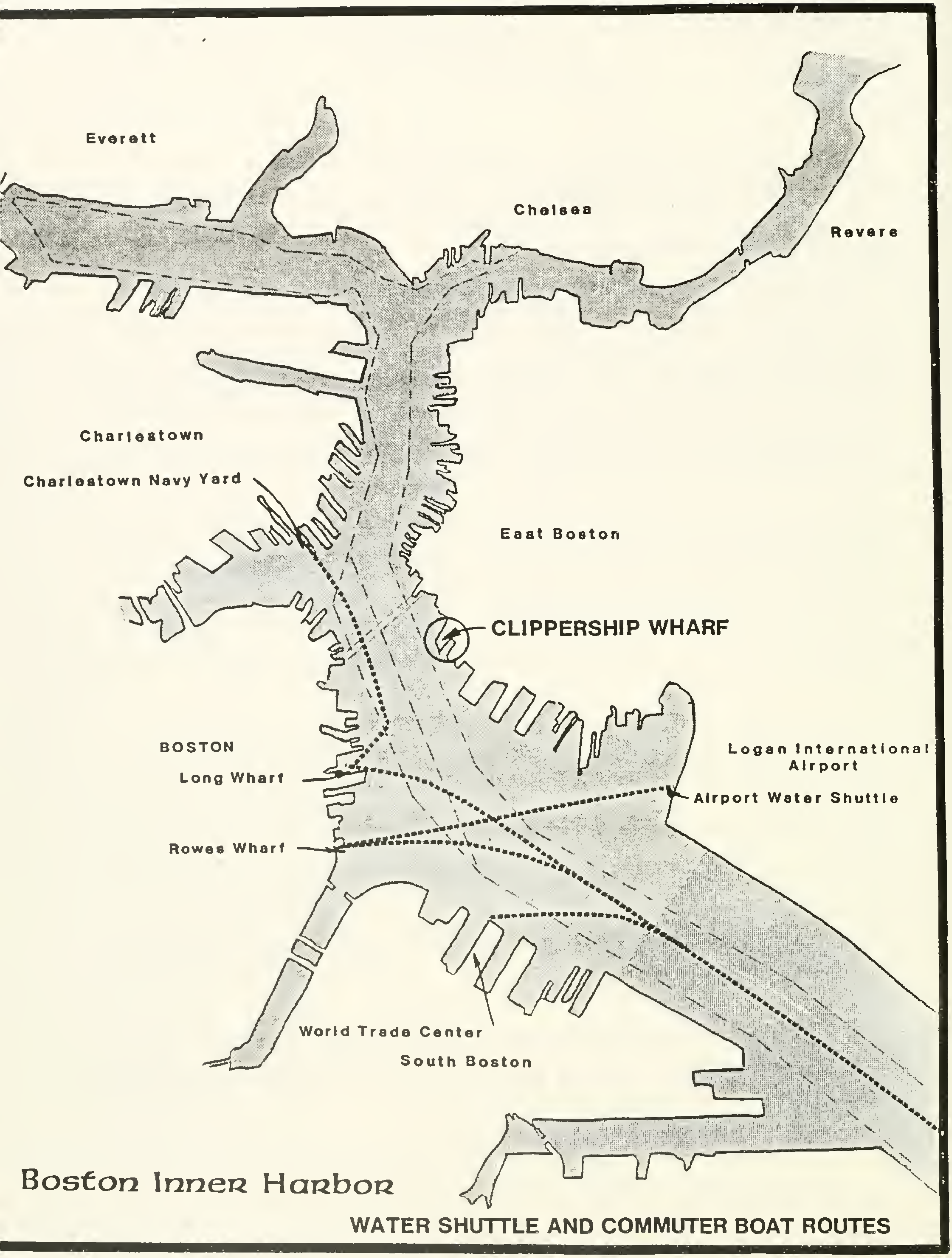
General

The question of marina boat usage conflicting with commercial maritime traffic is of great interest in Boston Harbor as recreational boating facilities proliferate. The waterways of the coastal United States are deemed available for use by all its inhabitants. Public access to the sea has become a rallying cry of many public agencies. The development of private marina facilities provides a significant means of public access to the waterways without incurring the burden of development in the public sector.

Unfortunately, the waterway in a harbor scenario offers only restricted passage between the shoreline. Within this restriction all commercial and recreational activities must occur. Commercial vessels are often burdened by draft and maneuverability such that their movement is further restricted within the designated channel limits. The necessity of maintaining the viability of commercial shipping interests is obvious to the interests of the City and region.

It is also important to provide a suitable and safe capability for the use of small craft within the harbor. Compounding the problem is the resurgence of interest in waterborne transportation. Boston Harbor is now servicing several commuter boat operations, excursion boats and water shuttles. Shortly we expect to see a rapid interest in water taxis as a means to commuting within the City. Adding to this scenario will be the enhanced use of the Harbor by construction activities associated with the Third Harbor Tunnel and mandated sewage treatment facilities. **Figure 2** shows the generalized routes of water shuttle and commuter boats within the Inner Harbor. Note that the routes are not directly passing the Clippership Wharf locus.

In some fashion all these important interests must be accommodated within the confines of the Harbor. It appears that no one interest has overwhelming precedence over the others and therefore mutual accommodation must be achieved.



Boston Inner Harbor

WATER SHUTTLE AND COMMUTER BOAT ROUTES

FIGURE 2

Existing Conditions

Information provided by the City of Boston, Environment Department reveals that within the City of Boston area there are 16 yacht clubs, 4 sailing clubs, 12 marinas (having 1,680 slips) and 12 proposed projects which may add 761 marina slips. Of the 12 marinas indicated, 7 are reported to be within Boston Inner Harbor. The total number of recreational boats potentially using the Harbor is difficult to estimate since yacht club statistics and private moorings are not well defined. Suffice it to say that there is a potential for several thousand boats transiting the Harbor during peak summer boating days.

Commercial deep draft or otherwise restricted maritime traffic is again on the increase after a period of decline. These vessels are categorized as those vessels requiring pilotage to transit the Inner Harbor. **Figures** 3 and 4 present data on vessels requiring pilotage for the years 1985 and 1986. Note that only a portion of the total commercial maritime traffic entering Boston Harbor actually passes the Clippership Wharf location. **Figure** 5 shows the location of the several terminals used by the commercial traffic and the number of vessels using the facility for the particular year.

The Harbor also has a fair volume of smaller commercial vessels not subject to pilotage, such as tug and towboats, fuel barges, construction scows and fishing vessels. Some portion of these vessels will pass the project locus the exact number is difficult to estimate. Most of these vessels are relatively maneuverable and not as burdened as the larger vessels requiring pilotage.

The U.S. Army Corps of Engineers, in its publication "Waterborne Commerce of the United States, 1985" under the section New England Division, pages 138 and 139 presents statistics for the "main waterfront,(Port of Boston)" as having a total of 6,649 inbound vessel movements for the year 1985. This summary includes both self propelled and non self propelled; passenger, dry cargo, tanker, towboat and tug boat traffic. Further breakdown of statistics indicates that of the 6,649 vessel movements, 1,998 are destined for the Chelsea or Mystic Rivers and therefore pass the Clippership Wharf location.

There is obviously a significant number commercial vessel movements within the Harbor on an annual basis, however when viewed in terms of the number of hours (8,760) or

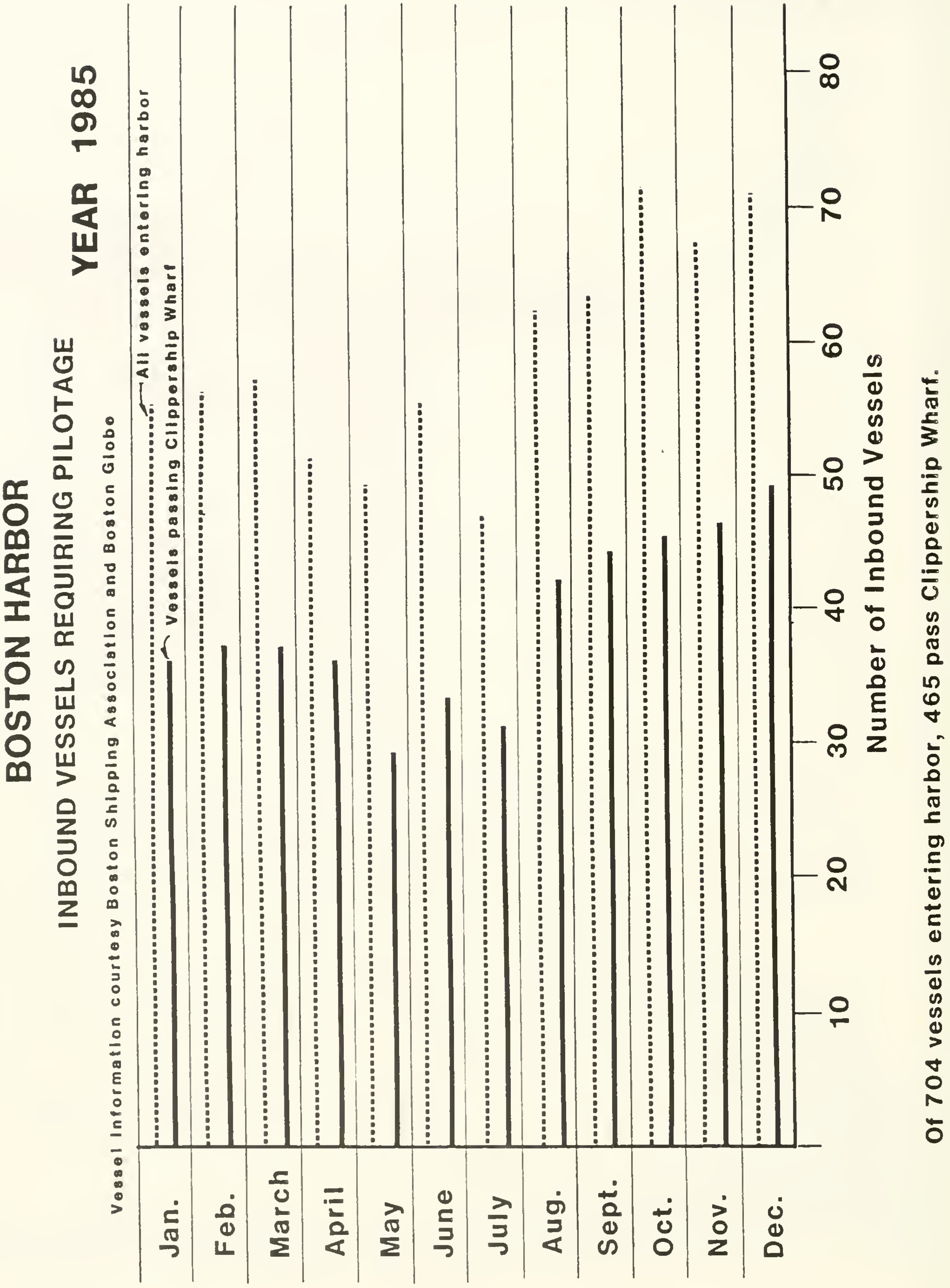
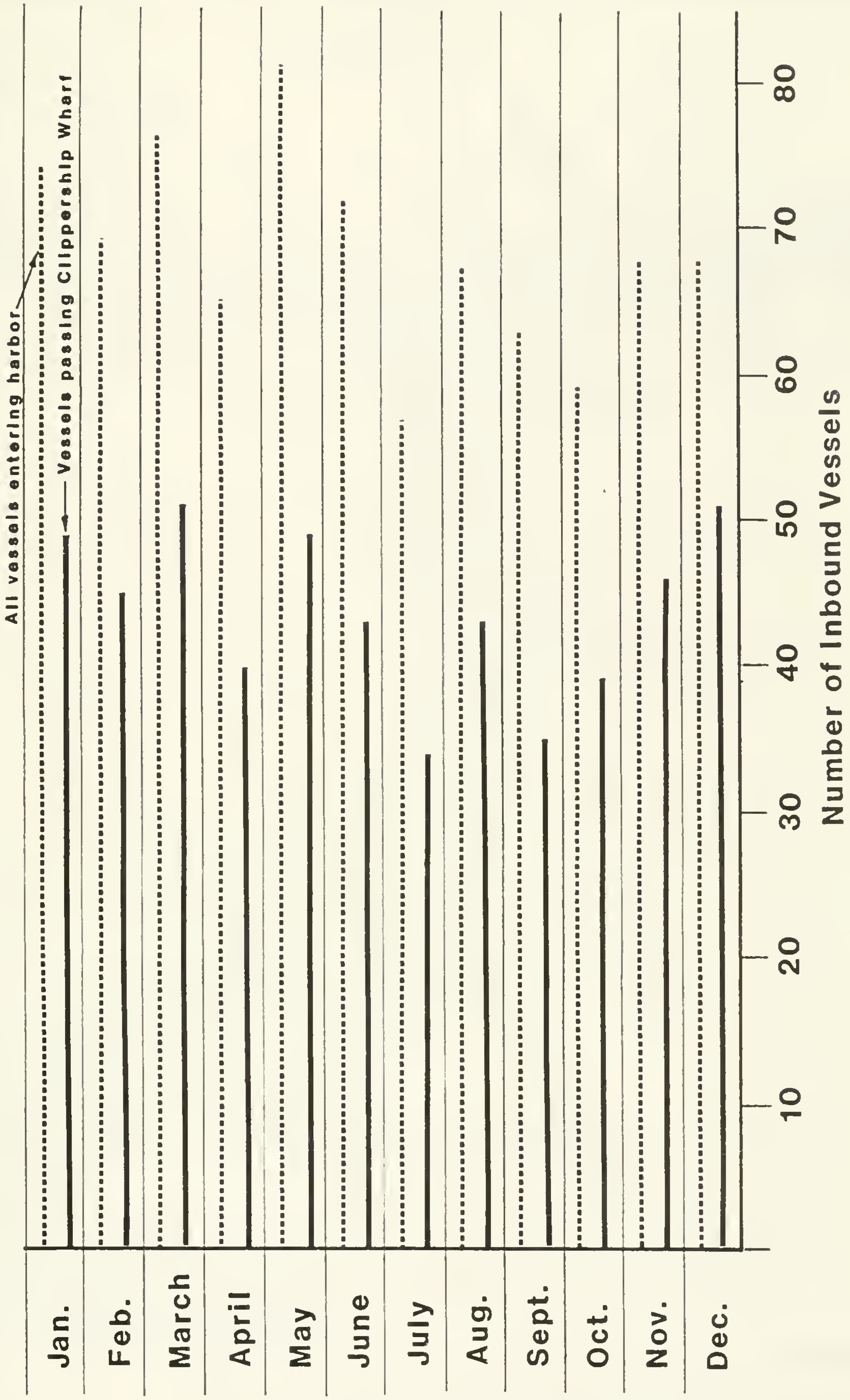

BOSTON HARBOR
INBOUND VESSELS REQUIRING PILOTAGE
YEAR 1985
Vessel Information courtesy Boston Shipping Association and Boston Globe
All vessels entering harbor
Vessels passing Clippership Wharf
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
10
20
30
40
50
60
70
80
Number of Inbound Vessels
Of 704 vessels entering harbor, 465 pass Clippership Wharf.

FIGURE 3

BOSTON HARBOR

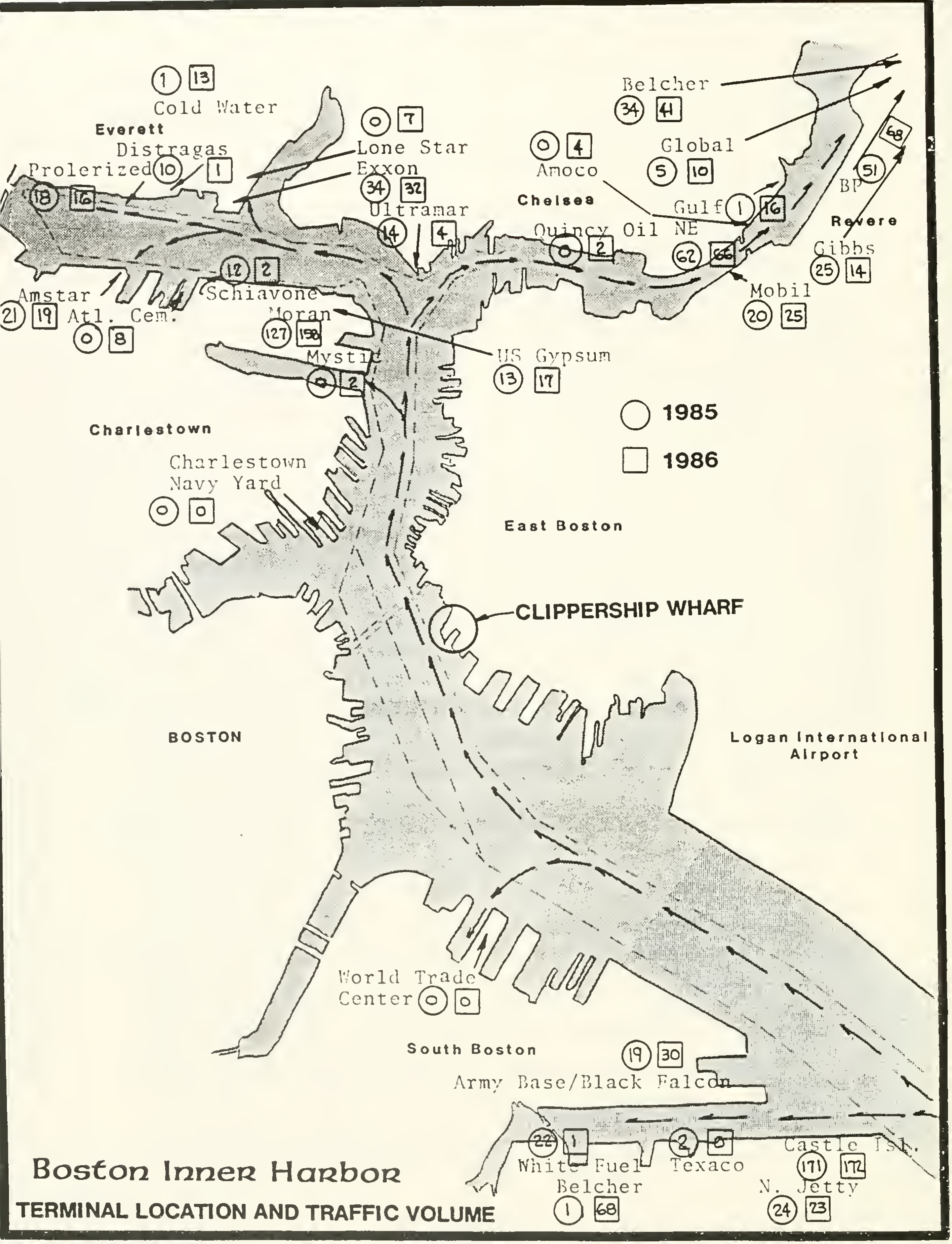
INBOUND VESSELS REQUIRING PILOTAGE

YEAR 1986



Of 819 vessels entering harbor, 525 pass Clippership Wharf.

FIGURE 4



Boston Inner Harbor

TERMINAL LOCATION AND TRAFFIC VOLUME

FIGURE 5

minutes (525,600) in a year the frequency of passage past the Clippership Wharf site is very small. If it takes an average vessel moving at 6 knots 10 minutes to pass the site then the percentage of time of vessels passing the site in one year (say 2000 vessels) is 20,000 minutes or 3.8%. Many of these vessels will not pass close aboard and therefore present minimal problems in terms of vessel wake impact or conflict with boats entering or leaving the marina.

Conflicts

Discussions with major commercial maritime interests including the Boston Pilots Association representative, Boston Shipping Association representatives and a major towboat operator reveals a posture that increased use of the Harbor by recreational boats creates a major conflict with commercial interests. We concur that the are and will continue to be times when recreational boat traffic will interfere with commercial traffic. Similar conditions exist on our highways and major air traffic lanes.

In an attempt to quantify the occurrence of commercial/recreational boating conflicts, a review was made of the U.S. Coast Guard , Marine Casualty Port Log for the 1st Coast Guard District. Cases involving commercial and recreational vessels were considered for review. The time frame considered was from March 1985 to November 1987. The Coast Guard log represents actual cases of all types of Coast Guard activity and develops reported incidents, follow up and cases closure. It does not indicate filed complaints that were not substantiated or followed up the the reporting party. The cases presented are for general background so vessel identification and personnel involved have been omitted. The primary incidents reviewed were categorized as collision or vessel wake damage.

Interestingly, of the 536 cases reviewed, only three cases appear to present conditions under study and occurring in the Boston Inner Harbor. A case in December 1985 involved a tug underway in Boston Inner Harbor followed closely by a sister tug. The leading tug was interfered with by a small boat cutting across its bow causing the leading tug to back down to avoid collision. The following tug struck the stern of the leading tug causing considerable damage. The small boat initiating the incident was not described and chances are that it may not have been a recreational boat since the incident occurred on a week day during December, not a normal recreational boating season in the northeast.

A second case involved a large foreign flag container vessel, under pilotage, that collided, in fog, with a moored recreational boat. The incident occurred in September 1986. The container vessel failed to navigate within the channel limits and strayed into the designated non-navigable zone along the Atlantic Ave/Commercial Street section of the Boston waterfront. The recreational boat was on a mooring and unoccupied at the time of the collision. The recreational boat was damaged.

A third case involved a fishing vessel maneuvering away from a dock. The fishing vessel lost control due to a mechanical failure and collided with another vessel inflicting damage.

The lack of extensive casualty reporting data either indicates that potential or actual commercial/recreational boating conflicts are not reported, reported but not followed up to case closure or that there is not a significant number of incidents. In defense of commercial interests we believe there are a number of conflicts that do occur between commercial and recreational vessels within the Inner Harbor. Certainly navigating a large commercial vessel having restricted maneuverability through the harbor on a busy summer weekend is difficult and perhaps even dangerous. Discussions with harbor pilots and commercial operators indicate that the most serious problems are: unpowered or underpowered sailing vessels that become becalmed or are tacking within the channel and are unable or unwilling to yield to the rightful passage of the restricted commercial vessel; vessels, both power and sail, that pass close ahead or close aboard such that they cannot be seen from the commercial vessel bridge and/or require collision avoidance actions by the commercial vessel operator. Reduced visibility, weather or darkness, also presents difficulty in seeing and anticipating small vessels movements. Low sun angle, sunset or sunrise, often blind vessel operators making other vessel movements non discernable or difficult to anticipate.

On the other hand there are numerous reported but not documented instances of violations by commercial operators against recreational craft such as overtaking with large amounts of wake production, crossing close aboard after overtaking and large wake production in the vicinity of berthed or moored vessels.

The introduction of 30 or 40 recreational marina slips at Clippership Wharf will not significantly alter the potential or lack thereof of conflict between commercial and recreational marine traffic. The type of vessel to be berthed at Clippership Wharf will be power and sail in the 30 feet to 45 foot range. These vessels are generally powered craft and if they observe the Rules of the Road should not cause interference with commercial traffic. Boats exiting the marina will do so outside of the established channel limits and will have good visibility up and down harbor which should preclude conflicts with commercial vessels within the channel limits but in the vicinity of the marina. The marina will be afforded wave/wake attenuation protection which should mitigate the effects of normal transiting vessels passing the marina.

Recommendations

The subject of commercial\recreational maritime conflicts is larger than any one urban waterfront marina development project. A combined effort of recreational boating interests, commercial operators, harbor regulatory authority and City, State and Federal interest must join together to establish workable guidelines for harbor management. We offer the following ideas for further discussion in a more appropriate forum.

1. Require evidence of some form of acceptable boater education before being allowed to navigate in congested harbors like Boston. This might be a requirement implemented in all marina, yacht club and mooring contracts or membership for facilities within the Inner Harbor area.

2. Develop a program with handouts to be distributed statewide to all boating interests describing the problems of commercial interests, ie: visibility restrictions associated with

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navigating from the bridge of large vessels; effective stopping distances or maneuvering criteria for large or restricted vessels; difficulty in radar interpretation of small boats especially in congested harbor displays; identify channel usage by commercial vessels; identify major maritime terminals and associated commercial routes to those terminals; reinforce the Rules of the Road and identify the best method of communicating with commercial traffic, etc.

3. Investigate the possibility of escort service for major commercial vessels during peak recreational boating times (summer weekends). The downtrodden Coast Guard Auxiliary (with their new advanced training program) might be able to provide this service. Route sweeping in advance of a large commercial vessel could alert boaters to its presence and provide assistance to becalmed or disabled craft in way of the vessel. No enforcement power is necessary only courtesy, advise and assistance if requested. No interference with the commercial interests would be required except perhaps by radio communication in the form of situation alerts. Commercial interests may then have time to exercise evasive maneuvers. The clearance patrols could also act as monitors to observe real conditions and provide knowledgeable data for future harbor management decisions.

4. Establish a forum to enhance communication between commercial and recreational interests to remove the antagonism that appears to exist. Intelligent communication and mutual understanding of each others problems could go a long way to enhance safety and utilization of the harbor waterway.

5. Mutually petition/contribute/make noise to provide more harbor regulation enforcement and perhaps provide better channel identification. The commercial channels are currently poorly designated for visual understanding of their locations when underway in a small craft. A glaring example is the so-called magenta zone along Atlantic Avenue which by Federal law has been designated non-navigable.

6. Consider channel separation schemes to help isolate different categories of vessel movements. This technique is successfully used in a number of harbors worldwide.